FITS Generic Instrument Airplane Rating Syllabus Multi-Engine

August 2007

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INTRODUCTION

How to use this generic FITS Syllabus

This syllabus is an FAA Industry Training Standards (FITS) accepted training method. This generic syllabus is a guide for you to use in developing your specific FITS curriculum. This FITS Syllabus is intended as a guide for aircraft manufacturers, training providers, and flight schools to use in developing a specific FITS curriculum for their aircraft, geographic region, and customer base. This syllabus is unique in several ways. First, it is a syllabus that uses real-world scenarios as the foundation of the training. Flight maneuvers are still a vital part of flight training and flight maneuvers are a part of this syllabus, but the use of real-world scenarios is used to also enhance the pilot's decision making skills. The syllabus presents situations and circumstances that pilots face everyday as learning experiences and lessons. The primary tenant of FITS training is that you prepare for the real world of flying, by acting as a pilot while in training. Therefore, throughout the syllabus, the pilot in training (PT) will take on different tasks or jobs just as if they were already certificated pilots. The second important unique feature of this syllabus and of FITS training is that it is all competency based. When the pilot in training (PT) masters a particular skill area in the syllabus, he/she moves on regardless of how much time it takes to reach that point of mastery. This means that each lesson does not necessarily equal one flight. It may take several flights before the PT masters the elements of the lesson and is ready to move on to the next lesson. Consequently, the amount of total flight hours a PT has when the syllabus is completed may be more or less than the minimum times under current aviation regulations. Please note that FITS training is conducted under the current CFAR's. Although philosophically, FITS is competency based, many training organizations must still require their students to meet the FAA minimum training hours. Courses under CFAR Part 142 and section 141.55(d) may be approved to train to competency and not require an hours minimum.

Regulations

This generic syllabus is adaptable to 14 CFR Parts 142, 141, or 61. Please refer to the appropriate regulations for your specific curriculum requirements.

FITS Acceptance

FITS acceptance is achieved by developing your specific curriculum and submitting it to your local Flight Standards District Office for operations under CFAR Part 61, 141, and 142. If you are an OEM (Original Equipment Manufacturer, you should submit your curriculum to the FAA FITS Program Manager, AFS-800, Federal Aviation Administration, 800 Independence Ave. SW, Washington, DC 20591. A cover letter explaining exactly for what courses you are requesting FITS acceptance and under what regulations should accompany the curriculum. *Use of the FITS logo*. Once accepted, you are free to use the FITS Logo on all accepted curriculums and in

advertising about this particular curriculum. The FITS logo cannot be used in relationship to non-FITS products.

There are 4 levels of FITS acceptance:

1. Accepted FITS Flight Syllabus: Will contain all the tenets of FITS and will include flight in an aircraft or at least an Advanced Training Device. Examples of this type of syllabus include initial, transition, and recurrent training syllabi.

2. Accepted FITS Syllabus (No flight): It is not intended to teach the pilot in training (PT) psychomotor pilot skills or full cockpit/aircraft integration in a specific aircraft. It's intended to enhance certain skill sets of the PT. Application of this level of acceptance may be to teach the PT how to use a new glass cockpit display or develop better Single Pilot Resource Management (SRM) skills. A FITS Accepted Syllabus will also contain all the tenets of FITS. A live instructor will lead the training.

3. Accepted FITS Self-Learning Program: This acceptance is between the FITS Accepted Syllabus and FITS Supporting Material. It may be either an interactive CD or on-line course on a specific application or subject. The purpose of this training is to learn a specific piece of equipment or enhance a specific higher order thinking skill. Scenario training and/or testing is required. Since a live instructor is not required, Learner Centered Grading may not be applicable.
    a. If the program is for a piece of equipment (i.e. GPS), the equipment should act like the actual piece of equipment during the interaction with the equipment as much as feasible. After basic training on the equipment, scenarios should be used to demonstrate PT proficiency and knowledge.
    b. For non equipment programs (i.e. ADM development) scenarios with multi-string testing should be used.

4. Accepted FITS Supporting Material: These products do not meet the training tenets of FITS (i.e. may not be scenario based), but the subject is integral to FITS. These products could be accepted on their own technical merit, but only as a part of an Accepted FITS Flight Syllabus or FITS Syllabus. For example, a CBI on risk management could be accepted as and used as a Lesson in a FITS accepted transition syllabus. Original equipment manufacturers (Cessna, Cirrus, Eclipse, etc.) or developers of training materials (Sporty's, Jeppesen, King Schools, etc.) normally develop Accepted FITS Supporting Material.

FITS TERMINOLOGY

Automation Bias – The relative willingness of the pilot to trust and utilize automated systems.
Automation Competence – The demonstrated ability to understand and operate the automated systems installed in the aircraft.
Automation Management – The demonstrated ability to control and navigate an aircraft by means of the automated systems installed in the aircraft.
Automated Navigation leg – A flight of 30 minutes or more conducted between two airports in which the aircraft is controlled primarily by the autopilot and the on board navigation systems.
Automation Surprise – Occurs when the automation behaves in a manner that is different from what the operator is expecting.
Candidate Assessment – A system of critical thinking and skill evaluations designed to assess a pilot in training's readiness to begin training at the required level.
Critical Safety Tasks/Events – Those mission related tasks/events that if not accomplished quickly and accurately may result in damage to the aircraft or loss of life.
Data link Situational Awareness Systems – Systems that feed real-time information to the cockpit on weather, traffic, terrain, and flight planning. This information may be displayed on the PFD, MFD, or on other related cockpit displays.
Emergency Escape Maneuver – A maneuver (or series of maneuvers) performed manually or with the aid of the aircraft's automated systems that will allow a pilot to successfully escape from an unanticipated flight into Instrument Meteorological Conditions (IMC) or other life-threatening situations.
IFR Automated Navigation Leg – A leg flown on autopilot beginning from 500 ft AGL on departure (unless the limitations of the autopilot require a higher altitude, then from that altitude) until reaching the decision altitude or missed approach point on the instrument approach (unless the limitations of the autopilot require a higher altitude, then from that altitude). If a missed approach is flown, it will also be flown using the autopilot and on-board navigation systems.
Light Turbine TAA –is a jet or turboprop Technically Advance Aircraft (TAA) certified for single-pilot operations, weighing 12,500 lbs or less, that may be equipped with cabin pressurization, and may be capable of operating in Class A airspace on normal mission profiles.
Mission Related Tasks – Those tasks required for safe and effective operations within the aircraft's certificated performance envelope.
Multi-Function Display MFD – Any display that combines primarily navigation, systems, and situational awareness information onto a single electronic display.
Primary Flight Display (PFD) – Any display that combines the primary six flight instruments, plus other related navigation and situational awareness information into a single electronic display.
Proficiency-Based Qualification – Aviation task qualification based on demonstrated performance rather than other flight time or experience.
Scenario Based Training – A training system that uses a highly structured script of real-world experiences to address flight-training objectives in an operational environment. Such training can include initial training, transition training, upgrade

training, recurrent training, and special training. The appropriate term should appear with the term "Scenario Based," e.g., "Scenario Based Transition Training," to reflect the specific application.

Simulation Training Only – Any use of animation and/or actual representations of aircraft systems to simulate the flight environment. Pilot in training interaction with the simulation and task fidelity for the task to be performed are required for effective simulation.

Single Pilot Resource Management (SRM) – The art and science of managing all resources (both on-board the aircraft and from outside sources) available to a single pilot (prior and during flight) to ensure the successful outcome of the flight is never in doubt.

Technically Advanced Aircraft (TAA) – A General Aviation aircraft that contains the following design features: Advanced automated cockpit such as MFD or PFD or other variations of a Glass Cockpit, or a traditional cockpit with GPS navigation capability, moving map display and autopilot. It includes aircraft used in both VFR and IFR operations, with systems certified to either VFR or IFR standards. TAA's may also have automated engine and systems management. **VFR Automated Navigation Leg –** A leg flown on autopilot from 1,000 ft AGL on the departure until entry to the 45-degree leg in the VFR pattern.

TRAINING PHILOSOPHY

FITS Training is a scenario-based approach to training pilots. It emphasizes the development of critical thinking and flight management skills, rather than solely on traditional maneuver-based skills. The goal of this training philosophy is the accelerated acquisition of higher-level decision-making skills. Such skills are necessary to prevent pilot-induced accidents.

FITS Training Goals

- Higher Order Thinking Skills
- Aeronautical Decision Making
- Situational Awareness
- Pattern Recognition (Emergency Procedures) and Judgment Skills
- Automation Competence
- Planning and Execution
- Procedural Knowledge
- Psychomotor (Hand-Eye Coordination) Skills
- Risk Management
- Task Management
- Automation Management
- Controlled Flight Into Terrain (CFIT) Awareness

Previous training philosophies assumed that newly certified pilots generally remain in the local area until their aviation skills are refined. This is no longer true with the advent of Technically Advanced Aircraft (TAA). Offering superior avionics and performance capabilities, these aircraft travel faster and further than their predecessors. As a result, a growing number of entry-level pilots are suddenly capable of long distance/high speed travel—and its inherent challenges. Flights of this nature routinely span diverse weather systems and topography requiring advanced flight planning and operational skills. Advanced cockpits and avionics, while generally considered enhancements, require increased technical knowledge and finely tuned automation competence. Without these skills, the potential for an increased number of pilot-induced accidents is daunting. A different method of training is required to accelerate the acquisition of these skills during the training process.

Research has proven that learning is enhanced when training is realistic. In addition, the underlying skills needed to make good judgments and decisions are teachable. Both the military and commercial airlines have embraced these principles through the integration of Line Oriented Flight Training (LOFT) and Crew Resource Management (CRM) training into their qualification programs. Both LOFT and CRM lessons mimic real-life scenarios as a means to expose pilots to realistic operations and critical decision-making opportunities. The most significant shift in these programs has been the movement from traditional maneuver-based training to incorporate training that is scenario-based.

Maneuver-based training emphasizes the mastery of individual tasks or elements. Regulations, as well as Practical Test Standards (PTS), drive completion standards. Flight hours and the ability to fly within specified tolerances determine competence. The emphasis is on development of motor skills to satisfactorily accomplish individual maneuvers. Only limited emphasis is placed on decision-making. As a result, when the newly trained pilot flies in the real-world environment, he or she is inadequately prepared to make crucial decisions. Scenario Based Training (SBT) and Single Pilot Resource Management (SRM) are similar to LOFT and CRM training. However, each is tailored to the pilot's training needs. These techniques use the same individual tasks that are found in Maneuver Based Training, but script them into scenarios that mimic real-life cross-country travel. By emphasizing the goal of flying safely, the pilot in training correlates the importance of individual training maneuvers to safe mission accomplishment. In addition, the instructor continuously interjects "What If?" discussions as a means to provide the trainee with increased exposure to proper decision-making. Because the "What If?" discussions are in reference to the scenario, there is a clear connection between decisions made and the final outcome. The "What If?" discussions are designed to accelerate the development of decision-making skills by posing situations for the pilot in training to consider. Once again, research has shown these types of discussions help build judgment and offset low experience.

Questions or situations posed by the instructor must be open-ended (rather than requiring only rote or one-line responses). In addition, the instructor guides the pilot in training through the decision process by: 1) Posing a question or situation that engages the pilot in training in some form of decision-making activity. 2) Examining the decisions made. 3) Exploring other ways to solve the problem. 4) Evaluating which way is best. For example, when the pilot in training is given a simulated engine failure, the instructor might ask questions such as: "What should we do now?" Or, "Why did you pick that place to land?" Or, "Is there a better choice?" Or, "Which place is the safest?" Or, "Why?" These questions force the pilot in training to focus on the decision process. This accelerates the acquisition of improved judgment, which is simply the decision-making process resulting from experience. It is not innate. All of our life experiences mold the judgment tendencies we bring to our flight situations. By introducing decision-making opportunities into routine training lessons, we speed-up acquisition of experience, thus enhancing judgment.

For further information, please reference "Aeronautical Decision Making" in the FAA Aviation Instructor Handbook.

TEACHING METHODS

Scenario Based Training

For Scenario Based Training (SBT) to be effective there must be a purpose for the flight and consequences if it is not completed as planned. It is vital that the pilot in training and the Instructor communicate the following information well in advance of every training flight:

Purpose of flight
Scenario destination(s)
Desired pilot in training learning outcomes
Desired level of pilot in training performance
Desired level of automation assistance
Possible in-flight scenario changes (during later stages of the program)

With the guidance of the Instructor, the pilot in training should make the flight scenario as realistic as possible. This means the pilot in training will know where they are going and what will transpire during the flight. While the actual flight may deviate from the original plan, it allows the pilot in training to be placed in a realistic scenario.

Scenario Planning – Prior to the flight, the Instructor will brief the scenario to be planned. The Instructor will review the plan and offer guidance on how to make the lesson more effective. Discussion, in part, will reflect ways in which the Instructor can most effectively draw out a pilot in training's knowledge and decision processes. This enables the Instructor to analyze and evaluate the pilot in training's level of understanding. After discussion with the Instructor, the pilot in training will plan the flight to include:

Reason to go flying
Route
Destination(s)
Weather
Notams
Desired pilot in training learning outcomes
Possible alternate scenarios and emergency procedures

Example of Scenario Based Training

Consider the following example: During traditional MBT, the Instructor provides a detailed explanation on how to control for wind drift. The explanation includes a thorough coverage of heading, speed, angle of bank, altitude, terrain, and wind direction plus velocity. The explanation is followed by a demonstration and repeated practice of a specific flight maneuver, such as turns around a point or S turns across the road until the maneuver can be consistently accomplished in a safe and effective manner within a

specified limit of heading, altitude, and airspeed**. *At the end of this lesson, the pilot in training is only capable of performing the maneuver.***

Now, consider a different example: The pilot in training is asked to plan for the arrival at a specific uncontrolled airport. The planning should take into consideration the possible wind conditions, arrival paths, airport information and communication procedures, available runways, recommended traffic patterns, courses of action, and preparation for unexpected situations. Upon arrival at the airport the pilot in training makes decisions (with guidance and feedback as necessary) to safely enter and fly the traffic pattern using proper wind drift correction techniques. This is followed by a discussion of what was done, why it was done, the consequences, and other possible courses of action and how it applies to other airports. ***At the end of this lesson the pilot in training is capable of explaining the safe arrival at any uncontrolled airport in any wind condition.***

The first example is one of traditional learning, where the focus is on the maneuver. The second is an example of scenario-based training, where the focus is on real world performance. Many course developers in flight training have built on the former option. Traditional training methods in many instances are giving way to more realistic and fluid forms of learning. The aviation industry is moving from traditional knowledge-related learning outcomes to an emphasis on increased internalized learning in which learners are able to assess situations and appropriately react. Knowledge components are becoming an important side effect of a dynamic learning experience.

Reality is the ultimate learning situation and scenario-based training attempts to get as close as possible to this ideal. In simple terms, scenario-based training addresses learning that occurs in a context or situation. It is based on the concept of situated cognition, which is the idea that knowledge cannot be known and fully understood independent of its context. ***In other words, we learn better, the more realistic the situation is and the more we are counted on to perform.***

Michael Hebron, a well-known golf instructor, suggests that there is little the expert can do in the way of teaching the learner particular motions of the golf swing. Instead, learning has to be experiential and feedback based; only a handful of basic principles are involved. The same goes, he says, for any and all kinds of learning. ***"It's about learning, not about golf."***

Scenario-based training (SBT) is similar to the experiential model of learning. The adherents of experiential learning are fairly adamant about how people learn. **They would tell us that learning seldom takes place by rote.** Learning occurs because we immerse ourselves in a situation in which we are forced to perform. We get feedback from our environment and adjust our behavior. We do this automatically and with such frequency in a compressed timeframe that we hardly notice we are going through a learning process. Indeed, we may not even be able to recite particular principles or describe how and why we engaged in a specific behavior. Yet, we are still able to replicate the behavior with increasing skill as we practice. If we could ask Mark

MacGuire to map out the actions that describe how he hits a home run, he would probable look at us dumbfounded and say, “I just do it.” On the other hand, I am sure Mark MacGuire could describe in detail the size and characteristics of every one of the baseball diamonds he was playing in as well as the strengths, weaknesses and common practices of every one of the pitchers he faced.

Developing Scenario-Based Training

Scenario-based training best fits an open philosophy of blended and multiple learning solutions in which change and experience are valued and the lines between training and performance improvement are blurred. For scenario-based training to be effective it must generally follow a performance improvement imperative. The focus is on improved outcomes rather than the acquisition of knowledge and skills. Success requires a blended, performance-based, and reinforced solution.

An athletic exercise such as Basketball might prove to be a very good example. Clearly, the team’s objective is to win, which means scoring more points than the other team. That’s the performance objective. Each member of the team also has personal performance goals. The coach can stand at a blackboard and explain defensive and offensive diagrams with players, the rules of the game, and so forth. By doing that, he has identified a set of learning subjects (rules and play patterns) that are best delivered in a traditional fashion.

On the other hand, the application of these subjects and the level of proficiency required in their use can only be learned on the court. The scenario in this example is a scrimmage. During a typical scrimmage, experienced players are mixed with non-experienced players and matched against a similarly constituted practice team. The two teams play a game, and the coaches stop the action at appropriate intervals to offer feedback. Learning takes place in a highly iterative fashion often without the player realizing that specific bits of learning are taking place. The scrimmage provides a player with the opportunity to make several decisions, engage in complex and fast-paced behaviors, and immediately see impact. The coach may have some general ideas of basketball in mind and perhaps some specific learning objectives for the day, but in most cases does not know precisely which of them will be addressed during the scrimmage – that depends on the flow of practice.

Similarly, most flight training consists of both kinds of subjects: those amenable to traditional instructional design techniques and those better approached through scenario-based training. Neither is all that useful without the other. Before a learner can engage in a scenario, he or she needs some basic subject knowledge and skill. However, the strongest adherents of the scenario-based approach suggest very little subject knowledge is needed in order to take advantage of SBT. **The main point is that knowledge without application is worth very little.**

The first step in the scenario design process is to engage a number of subject matter experts in a series of discovery sessions and interactive meetings for the purpose of identifying issues and learning objectives including higher-level and performance objectives. With clearly identified learning objectives, appropriate techniques and where to use them can be specified. In the basketball example, players need some rudimentary knowledge of the game and basic skill in order to make the practice session efficient and effective. Consequently, the required knowledge and skill objects need to be integrated into the actual sessions of practice. So, like a train pulling a number of boxcars, a traditional piece of learning precedes or is integrated into a scenario, with the scenario dictating what information is covered in the traditional piece. If, as described in the scrimmage session above, you don't precisely know what will come up in the practice, you shouldn't waste time in the traditional preparation. It's more efficient to share very basic principles and devote your resources to preparing to teach any situation that may arise. What is important, however, is to establish the boundaries of the scenarios. These are done using performance-based learning objectives (Internalized Responses) as opposed to knowledge-based learning objectives, and are worded as performance objectives rather than skill-based behavior objectives.

For example, in the traditional, more repetitive, intensive flight training sessions, objectives are knowledge-based and tend to be specific and limited. On the other hand, in scenario-based training we are simply trying to determine whether the learner has the minimum necessary knowledge/skill to qualify for the scenario. With scenario-based objectives, we are looking for performance behaviors and indicators of internalized responses, which are usually situational recognition indicators.

We can see this clearly illustrated in an automobile driver-training example (Table 1). The traditional Behavior (skill) objective is knowledge based and the SBT Performance objective is performance-based (responses which are situational recognition indicators).

Table 1: Driving Learning Objectives

Knowledge		**Behavior (Skill)**
Traditional	Know what a STOP sign and a Railroad crossing sign look like and what they mean. Describe the correct parallel parking procedure	Drive an automatic shift car on a county road over a 2-mile route with one RR crossing and 2 full stops. Maneuver the automobile into a normal parallel parking space between 2 other cars.
Internalized Response		**Performance**

Scenario-Based	Appropriately apply the rules of the road for driving in the local area in moderate traffic. Determine the shortest route and apply the appropriate procedures for driving in heavy and complex traffic conditions.	Drive from your garage to the Shopping Center on the same side of town Drive from your garage to a specified address in another town over 50 miles away on the Interstate and an Expressway system.

Scenario design sessions should resemble focus groups in which participants work through a series of issues, from broad scenario outlines to very specific scenario details. Direct participants to address two general areas: content and style.

Sessions to determine content usually ask participants to:

- Share experiences about the subject event
- Describe desirable outcomes
- Share best practices or known instances of consistent achievement of the desired outcomes
- Create indicators of successful outcomes
- Create strategies expected to lead to successful outcomes
- Establish descriptions of successful and unsuccessful performance behaviors related to these strategies (note that outcome measures and performance behaviors will constitute the evaluative criteria for assessing performance in the scenario).

After the content discussion, ask participants to review the look, feel, and flow of the scenario. This is much like the process used for instructional design. Develop a storyboard with a general beginning and end, using the boundaries established earlier. Talk through the scenario in the session and, through iteration, create a flow script from the results.

With these two elements in place, you can begin the actual construction of the scenario. A subcommittee of Flight Instructors and subject matter experts (SME's) should review and revise the scenario to fit into the whole course of instruction.

Scenarios are meant to be real situations. In an ideal world, an assessment team would evaluate behavior and agree on several critical performance dimensions. The key indicators should come from the initial SME's, in which they also create strategies expected to lead to successful outcomes and establish descriptions of successful and unsuccessful performance behaviors. Outcome measures and performance behaviors will constitute the evaluative criteria for assessing performance in the scenario.

Examples of indicators of successful outcomes are whether an airplane arrived and was secured at the destination airport and how safe were all aspects of the flight or were there any regulatory violations. Strategies are clusters of internally consistent behaviors

directed toward the achievement of a goal. Performance behaviors are the key behaviors in those strategies. Establishing these dimensions should be a group process and is usually completed in the subject matter expert design session.

Review, obtain learner feedback, and revise**.** All learning, even the most traditional, is iterative. The key to creating a useful scenario is to see it as a learning experience for the designers as well as the learners. This means that results and comments about the learning experience are shared with the SME's and the designer so that they can review and modify the scenarios as necessary. Obtain open –ended qualitative data from the learner and the Flight Instructor about the experience and review the data with the SME's and the designer.

Based on this kind of feedback, scenarios can be revised to better target the learner population. That process mirrors the original design steps. There are some cautions, however, in the revision process. First, there is an old saying: “It doesn’t take a cannon to blow away a tin can.” Basically, revisions should not needlessly complicate the scenario or the technology needed to employ it. It is crucial to weigh the risks of complication against the genuine learning needs. Before any revision, affirm the original purpose statement and the categorization of learning elements.

Also, do not let principles and main points become diluted by revisions. It is tempting to add more items and nuances in a scenario, but doing so further complicates the learning process. Save complexity for a full-scale “capstone” experience. Remember, adding an item in traditional learning complicates the learning process in a linear fashion. In scenarios, complication grows non-linearly with the addition of learning items. So, beware. A rule of thumb is to reduce rather than increase principles and main points in a revision.

Always review success and failure paths for realism. Remember that any change in a scenario item complicates all items on the path following it. Any time a decision node is altered, chances are that the decision nodes and information items following it must change. With every revision, follow and ensure the consistency of associated paths.

Finally, remember that traditional learning elements should service the scenario-based learning elements, which are situated in a real context and based on the idea that knowledge cannot be known and fully understood independent of its context. It is essential to place boundaries around scenarios to make the transitions between scenarios and traditional learning as efficient as possible.

Table 2: The Main Points

- Scenario-based training (SBT) is situated in a real context and is based on the idea that knowledge cannot be known and fully understood independent of its context.
- SBT accords with a performance improvement and behavior change philosophy of the learning function.
- SBT is different from traditional instructional design and one must be aware of the differences to successfully employ SBT.
- All learning solutions should employ both traditional and scenario-based training.
- Traditional learning elements should service the scenario-based training elements.
- It is essential to place boundaries around scenarios to make the transitions between scenarios and traditional learning as efficient as possible.
- Use interactive discovery techniques with subject matter experts (SME's) and designers to establish the purpose and outcomes of scenarios create the scenarios and appropriate strategies and performance behaviors, and develop learner evaluation criteria.
- SBT occurs by following success and failure paths through a realistic situation. Typically, these paths must be limited to stress the main learning objective. Otherwise the scenario can become too complex and unwieldy.
- Open-ended qualitative learner feedback is key to successful scenario revision, but revisions should not further complicate the scenario unless highly justified.

Kindley, R. (2002). *Scenario-Based E-Learning: A Step Beyond Traditional E-Learning.* Retrieved 02/02/05 from http://www.learningcircuits.org/2002/may2002/kindley.html

Single Pilot Resource Management

Single Pilot Resource Management (SRM) is defined as the art and science of managing all the resources (both on-board the aircraft and from outside sources) available to a single-pilot (prior and during flight) to ensure that the successful outcome of the flight is never in doubt. Most of us remember a favorite Instructor from our past that showed us the best way to solve in-flight problems and unforeseen circumstances. The FITS team has combined much of this collective CFI body of knowledge with some innovative teaching methods to give pilots practical tools to teach aeronautical decision-making and judgment. SRM includes the concepts of Aeronautical Decision Making (ADM), Risk Management (RM), Task Management (TM), Automation Management (AM), Controlled Flight Into Terrain (CFIT) Awareness, and Situational Awareness (SA). SRM training helps the pilot maintain situational awareness by managing the automation and associated aircraft control and navigation tasks. This enables the pilot to accurately assess and manage risk and make accurate and timely decisions. ***This is what SRM is all about, helping pilots learn how to gather information, analyze it, and make decisions.***

Teaching pilots to identify problems, analyze the information, and make informed and timely decisions is one of the most difficult tasks for Instructors. By way of comparison, the training of specific maneuvers is fairly straightforward and reasonably easy to understand. We explain, demonstrate, and practice a maneuver until proficiency is achieved. We are teaching the pilot in training ***"what to think"*** about each maneuver, and sign them off when they demonstrate proficiency. Teaching judgment is harder. Now we are faced with teaching the pilot in training ***"how to think"*** in the endless variety of situations they may encounter while flying out in the "real world." Often, they learn this by watching Instructors. They observe reactions, and more importantly, actions, during flight situations and they often adapt the styles of the Instructor to their own personalities.

Pilots in training may range from 100-hour VFR-only pilots, all the way to multi-thousand hours ATP's. The strength of this format is that the participants learn not only from their Flight Instructor, but from each other as well. The collective knowledge of many pilots, when guided by an experienced CFI, is much greater than the knowledge of each participant, including the Flight Instructor. In these scenarios, there are no right answers, rather each pilot is expected to analyze each situation in light of their experience level, personal minimums, and current physical and mental readiness level, and make their own decision.

The SRM scenarios, developed by the FITS team, incorporate several maneuvers and flight situations into realistic flight scenarios. The scenarios are much like the Line Oriented Flight Training (LOFT) employed by the major corporate and airline training organizations for years. Table 3 gives an example of the performance, standards and conditions using SRM.

Table 3: Single Pilot Resource Management (SRM)

Performance The training task is:	**Standards** The pilot in training will:	**Conditions** The training is conducted during:
1. Task Management (TM)	Prioritize and select the most appropriate tasks (or series of tasks) to ensure successful completion of the training scenario.	Note: All tasks under SRM will be embedded into the curriculum and the training will occur selectively during all phases of training. SRM will be graded as it occurs during the training scenario syllabus.
2. Automation Management (AM)	Program and utilize the most appropriate and useful modes of cockpit automation to ensure successful completion of the training scenario.	Note: All tasks under SRM will be embedded into the curriculum and the training will occur selectively during all phases of training. SRM will be graded as it occurs during the training scenario syllabus.
3. Risk Management (RM) and Aeronautical Decision-Making (ADM)	Consistently make informed decisions in a timely manner based on the task at hand and a thorough knowledge and use of all available resources.	Note: All tasks under SRM will be embedded into the curriculum and the training will occur selectively during all phases of training. SRM will be graded as it occurs during the training scenario syllabus.
4. Situational Awareness (SA)	Be aware of all factors such as traffic, weather, fuel state, aircraft mechanical condition, and pilot fatigue level that may have an impact on the successful completion of the training scenario.	Note: All tasks under SRM will be embedded into the curriculum and the training will occur selectively during all phases of training. SRM will be graded as it occurs during the training scenario syllabus.
5. Controlled Flight Into Terrain (CFIT) Awareness	Understand, describe, and apply techniques to avoid CFIT encounters: a. During inadvertent encounters with IMC during VFR flight. b. During system and navigation failures and physiological incidents during IFR flight.	Note: All tasks under SRM will be embedded into the curriculum and the training will occur selectively during all phases of training. SRM will be graded as it occurs during the training scenario syllabus.

The “5P” Check

SRM sounds good on paper, however, it requires a way for pilots to understand and deploy it in their daily flights. This practical application is called the “Five P’s (5P’s)” The 5P’s consist of “the Plan, the Plane, the Pilot, the Passengers, and the Programming”. Each of these areas consists of a set of challenges and opportunities that face a single pilot. And each can substantially increase or decrease the risk of successfully completing the flight based on the pilot’s ability to make informed and timely decisions. The 5P’s are used to evaluate the pilot’s current situation at key decision points during the flight, or when an emergency arises. These decision points include, pre-flight, pre-takeoff, hourly or at the midpoint of the flight, pre-descent, and just prior to the final approach fix or for VFR operations, just prior to entering the traffic pattern.

The 5P’s are based on the idea that the pilots have essentially five variables that impact his or her environment and that can cause the pilot to make a single critical decision, or several less critical decisions, that when added together can create a critical outcome. These variables are the Plan, the Plane, the Pilot, the Passengers, and the Programming. The authors of the FITS concept felt that current decision-making models tended to be reactionary in nature. A change has to occur and be detected to drive a risk management decision by the pilot. For instance, many pilots ascribe to the use of risk management sheets that are filled out by the pilot prior to takeoff. These catalog risks that may be encountered that day and turn them into numerical values. If the total exceeds a certain level, the flight is altered or cancelled. Informal research shows that while these are useful documents for teaching risk factors, they are almost never used outside of formal training programs. The number of pilots who use them before each and every flight approaches zero. The 5P concept is an attempt to take the information contained in those sheets and in the other available models and operationalize it.

The 5P concept relies on the pilot to adopt a “scheduled” review of the critical variables at points in the flight where decisions are most likely to be effective. For instance, the easiest point to cancel a flight due to bad weather is before the pilot and passengers walk out the door and load the aircraft. So the first decision point is Pre-Flight in the flight planning room, where all the information is readily available to make a sound decision, and where communication and FBO services are readily available to make alternate travel plans.

The second easiest point in the flight to make a critical safety decision is just prior to takeoff. Few pilots have ever had to make an “emergency take-off”. While the point of the 5P check is to help you fly, the correct application of the 5P before takeoff is to assist in making a reasoned go-no-go decision based on all the information available. That decision will usually be to “go”, with certain restrictions and changes, but may also be a “no-go”. The key point is that these two points in the process of flying are critical go-no go points on each and every flight.

The third place to review the 5Ps is at the mid point of the flight. Often, pilots may wait until the ATIS is in range to check weather, yet at this point in the flight many good options have already passed behind the aircraft and pilot. Additionally, fatigue and low altitude hypoxia serve to rob the pilot of much of their energy by the end of a long and tiring flight day. This leads to a transition from a decision-making mode to an acceptance mode on the part of the pilot. If the flight is longer than 2 hours, the 5P check should be conducted hourly.

The last two decision points are just prior to decent into the terminal area and just prior to the final approach fix, or if VFR just prior to entering the traffic pattern, as preparations for landing commence. Most pilots execute approaches with the expectation that they will land out of the approach every time. A healthier approach requires the pilot to assume that changing conditions (the 5Ps again) will cause the pilot to divert or execute the missed approach on every approach. This keeps the pilot alert to all manner of conditions that may increase risk and threaten the safe conduct of the flight. Diverting from cruise altitude saves fuel, allows unhurried use of the autopilot, and is less reactive in nature. Diverting from the final approach fix, while more difficult, still allows the pilot to plan and coordinate better, rather than executing a futile missed approach. Now lets look in detail at each of the “Five P’s”.

The Plan

The “Plan” can also be called the mission or the task. It contains the basic elements of cross country planning, weather, route, fuel, publications currency, etc. Unlike risk management sheets that pilot fill out before a flight, the “Plan” should be reviewed and updated several times during the course of the flight. A delayed takeoff due to maintenance, fast moving weather, and a short notice Temporary Flight Restriction (TFR) may all radically alter the plan. Several excellent flight planning software packages are available that automate this process, allowing the pilot additional time to evaluate and make decisions. Some include real time and graphical TFR depictions. The “plan” is not just about the flight plan, but the entire days events surrounding the flight and allowing the pilot to accomplish the mission. The plan is always being updated and modified and is especially responsive to changes in the other four remaining P’s. If for no other reason, the 5P check reminds the pilot that the day’s flight plan is real life and subject to change at any time.

Obviously the weather is a huge part of any “plan.” The addition of real time data link weather information give the TAA pilot a real advantage in inclement weather, but only if the pilot is trained to retrieve, and evaluate the weather in real time without sacrificing situational awareness. And of course, weather information should drive a decision, even if that decision is to continue on the current “plan.” Pilots of aircraft without datalink weather should get updated weather in-flight through a Flight Service Station and/or Flight Watch.

The Plane

Both the “plan” and the “plane” are fairly familiar to most pilots. The “plane” consists of the usual array of mechanical and cosmetic issues that every aircraft pilot, owner, or operator can identify. For example, Is everything working properly? Is the fuel situation where you expected it to be at that point? Are you using anti-ice equipment? However, with the advent of the Technically Advanced Aircraft (TAA), the “plane” has expanded to include database currency, automation status, and emergency backup systems that were unknown a few years ago. Much has been written about single pilot IFR flight both with, and without, an autopilot. While this is a personal decision, it is just that, a decision. Low IFR in a non-autopilot equipped aircraft may depend on several of the other “P’s” we will discuss. Pilot proficiency, currency, and fatigue are among them. The TAA offers many new capabilities and simplifies the basic flying tasks, but only if the pilot is properly trained and all the equipment is working as advertised.

The Pilot

This is an area all pilots are learning more and more about each day. Flying, especially when used for business transportation, can expose the pilot to high altitude flying, long distance and endurance, and more challenging weather. Technically Advance Aircraft (TAA), simply due to their advanced capabilities can expose a pilot to even more of these stresses. The traditional “IMSAFE” checklist is a good start. However, each of these factors must be taken in consideration of the cumulative effect of all of them together and the insidious effects of low altitude hypoxia. The authors informal survey of TAA pilots show that almost half fly with pulse oxymeters to display the effects of low altitude hypoxia in a graphic manner.

The combination of late night, pilot fatigue, and the effects of sustained flight above 5,000 feet may cause pilots to become less discerning, less critical of information, less decisive and more compliant and accepting. Just as the most critical portion of the flight approaches (for instance a night instrument approach, in the weather, after a four hour flight) the pilot’s guard is down the most. The “5P” process emphasizes that pilot recognize the physiological situation they are placing themselves in at the end of the flight, before they even takeoff, and continue to update their condition as the flight progresses. Once identified, the pilot is in an infinitely better place to make alternate plans that lessen the effect of these factors and provide a safer solution.

The Passengers

One of the key differences between CRM and SRM is the way passengers interact with the pilot. In the airline industry the passengers have entered into a contractual agreement with the pilots company with a clearly defined set of possible outcomes. In corporate aviation, the relationship between crew and passengers is much closer, yet is still governed by a set of operating guidelines and the more formal lines of corporate authority. However, the pilot of a highly capable aircraft has entered into a very personal relationship with the passengers, in fact, they sit within an arms reach all of the time.

It may be easy, especially in business travel, for the desire of the passengers to make airline connections or important business meetings to enter into the pilot's decision-making loop. If this is done in a healthy and open way, it is a very positive thing. However, this is not always the case. For instance, imagine a flight to Dulles Airport and the passengers, both close friends and business partners, need to get to Washington D.C. for an important meeting. The weather is VFR all the way to southern Virginia then turns to low IFR as the pilot approaches Dulles. A pilot employing the 5P approach might consider reserving a rental car at an airport in northern North Carolina or southern Virginia to coincide with a refueling stop. Thus, the passengers have a way to get to Washington, and the pilot has an out to avoid being pressured into continuing the flight if the conditions do not improve.

Passengers can also be pilots. The old joke says that when four Certified Flight Instructors (CFI) board a light general aviation, a NOTAM should be posted. There is some truth to this. If no one is designated as pilot in command and unplanned circumstances arise, the decision-making styles of four self confident CFI's may come into conflict. Another situation arises when an owner pilot flies with a former CFI in the right seat on a business trip. Unless a clear relationship is defined and briefed prior to the flight, the owner pilot may feel some pressure to perform for the Individual Learning Manager (possibly beyond his or her capability), and the Individual Learning Manager may feel inhibited from intervening in small decisions until it is clearly evident that the pilot is making poor decisions. This is actually a CRM situation and requires clear pre-flight understanding of roles, responsibilities, and communication. Non-Pilots can also cause the pilot to review the SRM process.

Pilots need to understand that non-pilots may not understand the level of risk involved in the flight. There is an element of risk in every flight. That's why SRM calls it risk management not risk elimination. While a pilot may feel comfortable with the risk present in a night IFR flight, the passengers may not and may manifest this during the flight. The human reaction to fear and uncertainty is as varied as the shapes of our ears. Some become quiet, some talk incessantly, and in extreme cases anger and fear are strongly manifested. This may be the last thing the pilot needs to deal with while shooting the ILS to 400 feet and a mile visibility at midnight.

A pilot employing SRM should ensure that the passengers are involved in the decision-making and given tasks and duties to keep them busy and involved. If, upon a factual description of the risks present, the passengers decide to buy an airline ticket or rent a car, then a good decision has generally been made. This discussion also allows the pilot to move past what he or she "thinks" the passengers want to do and find out what they "actually" want to do. This removes a load of self-induced pressure from the pilot.

The Programming

The TAA adds an entirely new dimension to the way General Aviation aircraft are flown. The Glass Cockpit, GPS, and Autopilot are tremendous boons to reduce pilot workload and increase pilot situational awareness. And frankly, the programming and operation of these devises is fairly simple and straightforward. However, unlike the analog instruments they replace, they tend to capture the pilot's attention and hold it for long periods of time (like a desktop computer). To avoid this phenomenon, the pilot should plan in advance when and where the programming for approaches, route changes, and airport information gathering should be accomplished…as well as times it should not. Pilot familiarity with the equipment, the route, the local air traffic control environment, and their own capabilities vis-à-vis the automation should drive when, where, and how the automation is programmed and used.

The pilot should also consider what his or her capabilities are in response to last minute changes of the approach (and the reprogramming required) and ability to make large-scale changes (a re-route for instance) while hand flying the aircraft. Since formats are not standardized, simply moving from one manufacturer's equipment to another should give the pilot pause and require more conservative planning and decisions.

The SRM Decision Process

The SRM process is simple. At least five times, before and during the flight, the pilot should review and consider the "Plan, the Plane, the Pilot, the Passengers, and the Programming" and make the appropriate decision required by the current situation. It is often said that failure to make a decision is a decision. Under SRM and the 5P's, even the decision to make no changes to the current plan, is made through a careful consideration of all the risk factors present.

Example of Single Pilot Resource Management

The teaching of SRM is best accomplished in a seminar environment. Recently, the authors conducted a set of classroom seminars that presented real time flight scenarios to a room full of qualified pilots of varied experiences. The first scenario presented was a night MVFR/IFR flight from St Augustine Florida to Washington Dulles Airport. The original **"Plan"** called for a non-stop flight with a 45-minute fuel reserve. The **"Plane"** was a well-equipped TAA with a minor navigation light problem that delayed departure by an hour. The **"Passengers"** were one pilot and one non-pilot. The non-pilot seemed nervous about the trip and a little ill. Both passengers needed to get to Washington DC for an important meeting the next day. The **"Pilot"** had spent a full day at a flight refresher clinic, including a two-hour flight and a three-hour class, and felt reasonably refreshed at the 5 PM departure time. And finally, the GPS/MFD, the "**Programming**," combination looked like it would make the flight a snap. However, there were questions about the currency of the database that required the pilot's attention.

The discussion that followed revolved around the reliability of the weather data, the fatigue of the pilot landing at Dulles at 9 PM, alternate ways to get the passengers to their meeting, minimum requirements for aircraft night flight, and a more complete understanding of the benefits and challenges posed by GPS programming and database currency. The 5p's ensured that each pilot looked at the entire picture prior to making the critical decisions that would lay the groundwork for success or failure over four hours later in Washington.

Predictably, the destination weather deteriorated slowly as the flight proceeded northbound. The pilot's fatigue level, low altitude/long duration hypoxia, a succession of minor annoyances caused by the airplane and the passengers, began to become a factor. Again, the pilots applied the 5p's, and many decided to land short of Washington Dulles, check the weather, and secure a rental car as a backup for the Monday morning meeting (in fact many decided this prior to takeoff).

For the purposes of the discussion, this aircraft was equipped with a ballistic parachute system. For those that proceeded to Dulles, the scenario ended with a spatial disorientation incident at 1500 feet, 10 miles short of the airport caused by pilot fatigue, latent hypoxia, and failure to use the autopilot. For many, it was the first time they had considered all the options available, and the criticality of quick and accurate decisions. In the background, another instructor began calling out altitudes and speeds as the aircraft descended to the ground, providing an added dose of realism and pressure. Should the class initiate an unusual attitude recovery, and if it did not work should they attempt another? How much will the passengers help or hinder the pilots thought processes? When, and how, should the ballistic parachute system be deployed, and what are its limitations. This scenario sparked questions about the capabilities and limitations of the autopilot, cockpit automation, and the parachute system. More importantly, it caused the pilots in the room to examine how they should gather critical information, assess the risks inherent in the flight, and take timely action. All agreed that a few accurate decisions before and during the early part of the flight reduced the risk to pilot and passengers.

All these questions were discussed in a lively thirty-minute session following the scenario. In this type of Scenario Based Training, the group discussion is just as important as the actual situation, for it is during the discussion that the pilots are most ready to learn, and begin to develop a mental model of how they might react to situations. Instead of encountering a once in a lifetime, life or death, situation alone on the proverbial dark and stormy night, the participants could examine how the situation had developed, understand the options available to them, and begin to develop a general plan of action well ahead of time.

Learner Centered Grading

The third component of the FITS training method, following each flight scenario, is to use the concept of “learner-centered grading.” Learner centered grading includes two parts: learner self assessment and a detailed debrief by the instructor. The purpose of the self assessment is to stimulate growth in the learner’s thought processes and, in turn, behaviors. The self-assessment is followed by an in-depth discussion between the instructor and the pilot in training which compares the instructor ratings to the pilot in training’s self-assessment.

To improve learning, it is recommended that learners prepare to learn from their experiences both before and after key events. This preparation should increase learning and enhance future performance. Pre-briefs are essential for setting goals. During key events, especially those that require high levels of attention, there may be little time for learning; most individuals allocate the bulk of their cognitive resources to performing the actual task; however, they may also dedicate some cognitive resources to self-monitoring, learning, and correction.

How facilitation and feedback occur is important to the learning process. In order for feedback to be useful for both informational and motivational purposes, it should be designed systematically. For example, the facilitator (Flight Instructor) should avoid lecturing the learner, and should withhold their observations and opinions of the exercise until the learner has given their opinion. The use of closed-ended questions may stymie the usefulness of the feedback process as well, as they encourage one-word/yes/no types of answers that do not elicit opinions of performance or suggestions for improvement. It is more effective to use open-ended questions that probe the learner to assess their own performance. Allotting enough time for the feedback is also important. Debriefs that are rushed often turn into one-way “lectures” due to time constraints.
Referring to prior pre-briefs when conducting subsequent debriefs provides a sense of continuity, reliability, and consistency, all of which are desirable attributes of a feedback source. Reminding learners of goals and lessons learned from prior exercises helps them plan for future events. Learners may also be more receptive to feedback during a debrief if they were appraised of the goal criteria in a pre-brief.

The FITS approach utilizes scenarios to teach Single Pilot Resource Management (SRM) while simultaneously teaching individual tasks such as landings and takeoffs. The authors quickly realized that this required a new approach to the pilot in training's performance measurement. Traditional grading approaches are generally teacher centered and measure performance against an empirical standard. The following example of a traditional flight syllabus demonstrates.

Table 4: A Traditional Grading Scale

. Excellent - the pilot in training has performed in an excellent manner . Good – the pilot in training has exceeded basic requirements . Satisfactory – the pilot in training has met basic standards . Marginal – the pilot in training has failed to perform the task standards . Unsatisfactory – the pilot in training has demonstrated significant performance difficulties

Table 5: A Traditional Lesson

Lesson Tasks	Lesson Sub Tasks	Lesson Grading
. Flight Planning	. Flight Planning . Weight and Balance and Aircraft Performance Calculations	. U, M, S, G, E . U, M, S, G, E
. Normal Preflight and Cockpit Procedures	. Normal Pre-Takeoff Checklist Procedures . GPS/Avionics Programming . MFD /PFD Setup	. U, M, S, G, E . U, M, S, G, E . U, M, S, G, E

This type of grading scale (See Table 4), or something similar, is in wide use throughout the aviation training industry. While it appears to be based on published standards, in reality it is often used as a tool to determine pilot in training progress and provide motivation. Thus, on the first lesson a pilot in training may receive an “Excellent” grade for attempting to plan the flight and accomplishing the weight and balance with a few minor errors. However, by the third flight, that same performance may only earn a “Satisfactory” grade due to lack of pilot in training progress (***note that while performance remained the same, the grade changed***). Additionally, the Flight Instructor awards the grade based on his or her observation of the pilot in training's performance. This observation, while accurate, may not be based on an understanding of the pilot in training’s level of knowledge and understanding of the task. Lastly, the pilot in training has been conditioned since grade school to look at grades as a reward for performance and may feel that there is a link between grades earned and their self-esteem. In reality, none of this aids pilot in training performance in any meaningful way.

The learner centered grading approach addresses these the above concerns. First, the grade is now a “Desired Scenario Outcome.” These outcomes describe pilot in training-learning behavior in readily identifiable and measurable terms. They reflect the pilot in training’s ability to see, understand, and apply the skills and tasks that are learned to the scenario.

For instance, a pilot in training who can “explain” a successful landing has achieved the basic level of competence to begin the learning process. Once the pilot in training can “explain” the effect of crosswind and speed reduction on rudder effectiveness, they have

achieved a level of learning that will allow for meaningful “Practice.” The “Perform” level denotes unsupervised practice and self-correction of errors. These grades are equally applicable to the first scenario to the last since they are not lesson dependent.

The grade of “Manage/ Decide” is used solely for SRM grading and the grade of “Perform” is used solely for task grading. A pilot in training who is becoming proficient at aeronautical decision-making and risk management would be graded first at the “Explain” level, then at the “Practice”, and finally at the “Manage/Decide” level. A Manage/Decide or Perform grade does not describe perfection. Rather, these grades simply show a proficient pilot who corrects their own errors so that the outcome of the flight is never in doubt. Realistically, this is the performance level we desire. All pilots make mistakes, it is in learning to identify and correct mistakes that they become proficient pilots.

Desired Outcomes

The objective of scenario-based training is a change in the thought processes, habits, and behaviors of the pilot in training during the planning and execution of the scenario. Since the training is learner centered, the success of the training is measured in the following desired pilot in training outcomes.

(a) Maneuver Grades (Tasks)

- Describe – at the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities. *Instructor assistance is required to successfully execute the maneuver.*
- Explain –at the completion of the scenario the PT will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity. *Significant instructor effort will be required to successfully execute the maneuver.*
- Practice – at the completion of the scenario the pilot in training will be able to plan and execute the scenario. *Coaching, instruction, and/or assistance from the CFI will correct deviations and errors identified by the CFI.*
- Perform – at the completion of the scenario, the PT will be able to perform the activity without assistance from the CFI. *Errors and deviations will be identified and corrected by the PT in an expeditious manner.* At no time will the successful completion of the activity be in doubt. (“Perform” will be used to signify that the PT is satisfactorily demonstrating proficiency in traditional piloting and systems operation skills)
- Not Observed – Any event not accomplished or required

(b) Single Pilot Resource Management (SRM) Grades

- Explain – the pilot in training can verbally identify, describe, and understand the risks inherent in the flight scenario. *The pilot in training will need to be prompted to identify risks and make decisions.*
- Practice –the pilot in training is able to identify, understand, and apply SRM principles to the actual flight situation. *Coaching, instruction, and/or assistance from the CFI will quickly correct minor deviations and errors identified by the CFI.* The pilot in training will be an active decision maker.
- Manage/Decide - the pilot in training can correctly gather the most important data available both within and outside the cockpit, identify possible courses of action, evaluate the risk inherent in each course of action, and make the appropriate decision. *Instructor intervention is not required for the safe completion of the flight.*
- Not Observed – Any event not accomplished or required

Grading will be conducted independently by the pilot in training and the instructor, and then compared during the post flight critique.

Learner centered grading (outcomes assessment) is a vital part of the FITS concept. Previous syllabi and curriculum have depended on a grading scale designed to maximize pilot in training management and ease of instructor use. Thus the traditional: "excellent, good, fair, poor" or "exceeds standards, meets standards, needs more training" often meet the instructor's needs but not the needs of the pilot in training. The learner centered grading described above is a way for the instructor and pilot in training to determine the pilot in training's level of knowledge and understanding. "Perform" is used to describe proficiency in a skill item such as an approach or landing. "Manage-Decide" is used to describe proficiency in the SRM area such as ADM. Describe, explain, and practice are used to describe pilot in training learning levels below proficiency in both.

Grading should be progressive. During each flight, the pilot in training should achieve a new level of learning (e.g. flight one, the automation management area, might be a "describe" item by flight three a "practice" item, and by flight five a "manage-decide" item.

Immediately after landing, and before beginning the critique, Flight Instructor Linda asks her pilot in training Brian to grade his performance for the day. Being asked to grade himself is a new experience but he goes along with it. The flight scenario had been a two-leg IFR scenario to a busy class B airport about 60 miles to the east. Brian had felt he had done well in keeping up with programming the GPS and the MFD until he reached the approach phase. He had attempted to program the ILS for runway 7L and had actually flown part of the approach until ATC asked him to execute a missed approach.

When he went to place a grade in that block he noticed that the grades were different. Instead of satisfactory or unsatisfactory he found, “Describe, Explain, Practice, and Perform”. He decided he was at the Perform level since he had not made any mistakes.

When Linda returned Brian discovered that she had graded his flight as well, with a similar grade sheet. Most of their grades appeared to match until the item labeled “programming the approach”. Here, where he had placed a “Perform” Linda had placed a “Explain”. This immediately sparked a discussion. As it turned out, Brian had selected the correct approach, but he had not activated it. Before Linda could intervene, traffic dictated a go around. Her explain grade told Brian that he did not really understand how the GPS worked and he agreed. Now, learning could occur.

In Table 6 on the following page, the desired outcome table denotes a pilot in training near the beginning of training and the grades reflect proficiency of the pilot in training to an expected level of performance in each of these areas. These grades are not self-esteem related since they do not describe a recognized level of prestige (such as A+ or “Outstanding”), rather a level of performance. You can’t flunk a lesson. However, you can fail to demonstrate the required flight and SRM skills. By reflecting on the lesson and grading their own performance, the pilot in training becomes actively involved in the critique process. Pilot in training participation in the process also reduces the self-esteem issue. But most importantly, this establishes the habit of healthy reflection and self-criticism that marks most competent pilots.

Table 6: Learner Centered Scenario Grading-Desired Outcome Table

Scenario Activities	Scenario Sub Activities	Desired Scenario Outcome
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision making and Risk management	1. Perform 2. Perform 3. Perform 4. Explain/Practice
Normal Preflight and Cockpit procedures	1. Normal Pre-Takeoff Checklist Procedures 2. GPS Programming 3. MFD Setup 4. PFD Setup	1. Perform 2. Explain/Practice 3. Practice 4. Explain/Practice
Engine Start and Taxi Procedures	1. Engine Start 2. Taxi 3. SRM/Situational Awareness	1. Perform 2. Perform 3. Explain/Practice
Before Takeoff Checks	1. Normal and Abnormal Indications 2. Aircraft Automation Management 3. Aeronautical Decision Making and Risk management	1. Perform 2. Explain/Practice 3. Manage/Decide

FITS Instrument Airplane Syllabus (Multi Engine)

Preface

There are two stages to this training syllabus. The first stage is where the basic skills and concepts of IFR flying will be introduced and practiced. The second will concentrate on emergency procedures and IFR travel within the National Airspace System. The final activity in this syllabus is the End of Course practical test administered by a check airman.

Stage I
In this stage the PT will review their basic attitude instrument flight skills and begin to acquire the knowledge and skills required to safely navigate an airplane solely by reference to instruments. In addition to simply learning the procedures necessary to execute each task the PT will be taught the fundamentals of aeronautical decision making and risk management.

Stage II
In this stage the PT will learn to apply the skills and knowledge acquired in the first stage to the IFR enroute environment. Potential emergency situations will be introduced to the PT and their SRM skills will be further developed and refined so that the PT is capable of managing all the resources available to them and can conduct the flight in the safest, most efficient way possible.

Disclaimer

Non-Precision Approaches

Please be advised that non-precision approaches include VOR approaches, ADF approaches, Localizer approaches, SDF approaches, and LDA approaches. If a lesson calls for a non-precision approach in this syllabus, the instructor should determine which type of approach should be incorporated based upon the PT's training needs, aircraft capability, and the local practice area. It is the instructor's duty to educate the PT on all types of non-precision approaches, their components, and limitations whether they are flown or not. Be advised that the Designated Pilot Examiner or FAA inspector can ask the applicant to demonstrate any approach that the aircraft equipment will support.

Precision Approaches

Please be advised that Precision approaches include ILS approaches, MLS approaches, and WAAS approaches. If a lesson calls for a Precision approach in this syllabus, the instructor should determine which type of approach should be incorporated based upon the PT's training needs, aircraft capability, and the local practice area. It is the instructor's duty to educate the PT on all types of Precision approaches, their

components, and limitations whether they are flown or not. Be advised that the Designated Pilot Examiner or FAA inspector can ask the applicant to demonstrate any approach that the aircraft equipment will support.

PTS Tasks

The grade sheets within this Generic syllabus were designed using the Scenario Activity and the associated tasks for the Instrument Pilot PTS. Individual elements of those tasks are not specifically addressed in these grade sheets. This was purposely done so that instructors could tailor the scenario to an individual PT's needs.

Completion Standards

The completion standards of each lesson will vary depending upon the stage of training for the PT. Be sure to make certain that each PT understands what is expected of them for the appropriate lesson should the newly created scenario deviate from those herein. The instructor should ALWAYS reference the current Instrument Pilot PTS for maneuver limitations. Maneuvers are also described in detail in FAA-H-8083-15, the Instrument Flying Handbook.

One Engine Inoperative Instrument Approach(s)

The instructor must ensure that the PT is familiar with one engine inoperative instrument procedures for both precision and non-precision approaches. The applicant should be familiar with the procedures for both approaches with one engine inoperative, as well as the procedures for a one-engine inoperative circling approach. The PT will have to perform both a precision and a non-precision approach with one-engine inoperative during the check ride with the examiner.

Flight Training - Stage I

Lesson 01 (ME FLT)

Scenario:
You just purchased a new multi engine airplane and have arranged to fly it home from the manufacturer. Part of the negotiated price includes some training flights with a flight instructor to familiarize you with the use of the aircraft systems. You and the company instructor will plan an IFR flight to a controlled airport to learn how to program the aircrafts avionics to conduct different types of instrument approaches. The instructor will point out various features of the avionic equipment and will explain how each system operates. During the flight, you will also be shown the different multi engine handling characteristics of the aircraft and will perform some basic flight maneuvers.

Lesson Objectives:
This training scenario will introduce the PT to the preflight preparation and procedures associated with local IFR flight activities and acquaint them with multi engine instrument procedures. During the flight the instructor will help develop the PT's scan and instrument interpretation skills as well as familiarize the student with the systems and instruments associated with IFR flight. Allow plenty of time for the PT to review basic attitude instrument flying. During the navigation portion of the flight, have the PT demonstrate constant rate/airspeed climbs and descents including one engine inoperative straight-and-level flight and turns by reference to instruments. Slow flight and stalls will be practiced so the PT has the opportunity to perform those maneuvers solely by reference to instruments. Should time allow, introduce a non-precision instrument approach.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the PT is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. The instructor should also introduce the theorems of IFR flight planning and the different procedures that exist and review one engine inoperative flight characteristics and aerodynamics.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 01 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Describe								
	Flight Planning	Describe								
	SRM	Explain								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Describe								
	Aircraft Flight Instruments and Navigation Equipment	Describe								
	Instrument Cockpit Check	Describe								
	SRM	Explain								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Describe								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Describe								
	SRM	Explain								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Describe								
	Constant Rate Climbs and Descents	Describe								
	Constant Airspeed Climbs and Descents	Describe								
	Turns to Headings	Describe								
	Slow Flight	Describe								
	Stalls	Describe								
Navigation Systems	SRM	Explain								
	Intercepting and Tracking Navigational Systems	Describe								
Automation Management	SRM	Explain								
	Avionics Programming and Operation	Describe								
	GPS Programming and Operation	Describe								
	Autopilot Programming and Operation	Describe								
Instrument Approach Procedures	SRM	Explain								
	Non-precision Approach	Describe								
	Landing from a Straight-In	Describe								
	SRM	Explain								
Emergency Operations	One Engine Inoperative During Straight-and-Level Flight and Turns	Describe								
Maneuvers	Maneuvering During Slow Flight	Describe								
	Power-On Stalls	Describe								
	Power-Off Stalls	Describe								
Post-flight Procedures	Checking Instruments and Equipment	Describe								
	SRM	Explain								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

With your assistance the PT will perform the necessary preflight preparation for an IFR flight to a nearby controlled airfield in a multi-engine aircraft; this should include the introduction of IFR flight planning procedures and clearances. You will assist the PT conduct the instrument cockpit check and demonstrate how each navigation system and electronic flight instrument display's operational status is checked. Allow the student to handle all ATC communications, including IFR clearances, and provide assistance when necessary. During the navigation portion of the flight, have the PT demonstrate constant rate/airspeed climbs and descents as well as turns to headings and other instrument flight procedures. Discuss the control and performance method and the primary and supporting method and explain how each technique is used during basic attitude instrument flying. During stalls and slow flight discuss spin awareness and the importance of coordinated aircraft control. Review one engine inoperative flight characteristics during straight-and-level flight and turns. Review the definition of a critical engine and what its effect has on multi engine flight characteristics. Ensure that the PT understands the spin awareness procedures and can describe one engine inoperative flight aerodynamics. Should time allow, introduce a non-precision instrument approach. Demonstrate the procedure for setting up the navigational equipment to be used and explain the clearances associated with the arrival and approach. During the approach, emphasize the cognitive aspect of the procedure by asking the PT to tell you what steps to take while you fly the airplane. This method assures that the PT's first exposure to an instrument approach is as a mental task rather than a physical one. The PT will learn much quicker once they learn to manage the process through a well developed SRM approach.

Flight Training - Stage I

Lesson 02 (ME FLT)

Scenario:
After your first training flight in your new aircraft, the instructor still feels that you need some additional training on instrument flight maneuvers, the aircraft's avionics operation and its programming. For your second aircraft introduction flight, you again fly to another controlled airfield where you can learn to program the aircrafts systems in preparation for instrument procedures. Like on the first flight, the instructor will ask you to perform some basic flight maneuvers to demonstrate your ability to fly the new aircraft.

Lesson Objectives:
One of this lesson scenario's goals is to give the PT the further opportunity to practice and improve their basic instrument flying skills. This can be accomplished at the same time the PT is navigating via each navigational system in the aircraft. During the navigation portion of the flight, have the PT demonstrate constant rate/airspeed climbs and descents including one engine inoperative straight-and-level flight and turns by reference to instruments. The PT should gain proficiency operating and managing the navigational systems and be introduced to any traffic/terrain awareness systems that may be installed in the aircraft. The PT will also be introduced to the procedures associated with intercepting and tracking DME Arcs. During the non-precision instrument approach the PT should be allowed to manage as much of the aircraft control, radio communications, and navigation as they can before becoming task saturated. The instructor should emphasize the use of SRM to help the PT develop effective ways of managing the increased pilot workload associated with single pilot IFR flying. Concentrate on helping the PT develop the ability to manage the process rather than their ability to fly it.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. The PT should gain proficiency operating and managing the navigational systems and be introduced to any traffic/terrain awareness systems that may be installed in the aircraft. The PT will also be introduced to the procedures associated with intercepting and tracking DME Arcs. During the non-precision instrument approach the PT should be allowed to manage as much of the aircraft control, radio communications, and navigation as they can before becoming task saturated. The instructor should

emphasize the use of SRM to help the PT develop effective ways of managing the increased pilot workload associated with single pilot IFR flying. Concentrate on helping the PT develop the ability to manage the process rather than their ability to fly it. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 02 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Explain								
	Flight Planning	Explain								
	SRM	Explain								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Explain								
	Aircraft Flight Instruments and Navigation Equipment	Explain								
	Terrain Awareness Systems	Explain								
	Instrument Cockpit Check	Explain								
	SRM	Explain								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Describe								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Describe								
	SRM	Explain								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Explain								
	Constant Rate Climbs and Descents	Explain								
	Constant Airspeed Climbs and Descents	Explain								
Navigation Systems	Turns to Headings	Explain								
	Intercepting and Tracking Navigational Systems	Explain								
	DME Arcs	Explain								
	SRM	Practice								
Automation Management	Avionics Programming and Operation	Describe								
	GPS Programming and Operation	Describe								
	Autopilot Programming and Operation	Describe								
	SRM	Explain								
Instrument Approach Procedures	Non-precision Approach	Describe								
	Landing from a Straight-In Approach	Describe								
	SRM	Explain								
Emergency Operations	One Engine Inoperative During Straight-and-Level Flight and Turns	Describe								
Maneuvers	Maneuvering During Slow Flight	Practice								
	Power-On Stalls	Practice								
	Power-Off Stalls	Practice								
	Checking Instruments and Equipment	Explain								
Post-flight Procedures	SRM	Explain								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

With your assistance the PT will perform the necessary preflight preparation for the second aircraft introduction flight. You should assist the PT conduct the instrument cockpit check and allow the student to handle all ATC communications, including IFR clearances, and provide assistance when necessary. During the navigation portion of the flight have the PT demonstrate constant rate/airspeed climbs and descents as well as turns to headings and other instrument flight procedures including one engine inoperative characteristics during straight-and-level flights and turns. Review the control and performance method and the primary and supporting method. When introducing the DME Arc, have the PT intercept the arc from both sides and make sure they can explain why the two intercepting procedures are different. Familiarize the student with any traffic/terrain awareness systems by explaining how to interpret the display and how to use that information to remain clear of any potential collision hazards. Make sure the student is also aware of the systems limitations. Before shooting the approach, brief the PT on what radio communications to expect, the navigational requirements of the approach, and the aircraft performance numbers necessary to successfully complete the approach. While on the instrument approach, develop a realistic reason why the PT would need to circle and land on another runway to teach circling approach procedures. Don't allow the PT to develop bad SRM habits. Make helpful suggestions about how to prioritize their tasks and better manage their time and resources. Stress the components of SRM, Aeronautical Decision Making (ADM), Risk Management (RM), Task Management (TM), Automation Management (AM), Controlled Flight Into Terrain (CFIT) Awareness, and Situational Awareness (SA). Demonstrate whenever possible how good SRM skills can reduce the workload on a pilot and help keep them ahead of the airplane.

Flight Training - Stage I

Lesson 03 (ME FLT)

Scenario:
You will meet your instructor for the last of the free checkout flights that come with your new multi-engine airplane. The temperature is just at freezing and the instructor wants to take you to another airport that is known for its coffee. During this last training flight, the instructor will brief you on some of the malfunctions that could occur in an emergency. The weather is overcast at both your departure and arrival airport; because of this your instructor thinks that you could get some more practice with programming and flying instrument approaches.

Lesson Objectives:
The objective of this lesson scenario is to introduce the PT to partial-panel flight and allow them an opportunity to practice basic instrument maneuvers without the advantage of the primary flight indicators. The PT should be able to describe the procedures associated with this type of system failure and be able to tell you what they would do to mitigate the increased risk caused by it. Along with improving the PT's proficiency at maneuvering and navigating the multi-engine airplane, both full and partial-panel, this scenario will continue to expose the student to instrument arrival procedures and approaches and introduce one engine inoperative instrument approach procedures. Additionally, the PT will be asked to perform a missed approach for the first time. The PT should be able to describe the general concept of the procedure and be able to identify the missed approach point and initiate contact with ATC as soon as practical.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. The student will be introduced to one engine inoperative instrument approach procedures, as well as missed approaches and some system failures leading to partial panel in this flight.

Completion Standards:

The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. The PT should be able to describe the procedures associated with system failures and be able to tell you what they would do to mitigate the increased risk caused by them. The PT should also be able to describe the general concept of the missed approach procedure and be able to identify the missed approach point and initiate contact with ATC as soon as practical. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 03 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Describe								
	Flight Planning	Describe								
	SRM	Explain								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Describe								
	Aircraft Flight Instruments and Navigation Equipment	Describe								
	Instrument Cockpit Check	Describe								
	SRM	Explain								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Describe								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Describe								
	SRM	Explain								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Explain								
	Constant Rate Climbs and Descents	Explain								
	Constant Airspeed Climbs and Descents	Explain								
	Turns to Headings	Explain								
	SRM	Explain								
Navigation Systems	Intercepting and Tracking Navigational Systems	Practice								
	SRM	Explain								
Automation Management	Avionics Programming and Operation	Describe								
	GPS Programming and Operation	Describe								
	Autopilot Programming and Operation	Describe								
	SRM	Explain								
Instrument Approach Procedures	Non-precision Approach	Describe								
	Missed Approach	Describe								
	Landing from a Straight-In or Circling Approach	Describe								
	SRM	Explain								
Emergency Operations	Systems and Equipment Malfunctions	Describe								
	Partial Panel	Describe								
	One Engine Inoperative During Straight-and-Level Flight and Turns	Explain								
	One Engine Inoperative Instrument Approach	Describe								
	SRM	Explain								
Post-flight Procedures	Checking Instruments and Equipment	Describe								
	SRM	Explain								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

The PT will perform the necessary preflight preparation as well as conduct the instrument cockpit check unassisted. The instructor should allow the student to handle all ATC communications, including IFR clearances, and provide assistance only when necessary. During the partial-panel navigation portion of the flight the instructor should have the PT demonstrate constant rate/airspeed climbs and descents as well as turns to headings and other instrument flight maneuvers. Discuss how the failure of the primary flight instrument indicators affects the instrument scan for both the control and performance method and the primary and supporting method. Prior to executing the first approach the instructor should ask the PT to brief the approach and describe the missed approach procedures. Discuss the process involved in determining when a missed approach is required and the pilot actions required in the event it is. Have the PT also consider how having to perform a missed approach changes the circumstances of the flight and directly impacts our aeronautical decision making considerations. This is a good time to have the PT assess their situation, consider all the options, and determine the best course of action to take. In this case the PT should ask for another attempt at the approach since that is all that is called for in this scenario. After the instructor feels that the PT understands how to safely fly the instrument procedures, a one engine inoperative instrument approach should be introduced. The instructor should review the correct procedure for this approach with the student and review all applicable airspeeds. Throughout the arrival process, the instructor should be reinforcing the importance of pre-planning and the efficient use of SRM.

Flight Training - Stage I

Lesson 04 (ME FLT)

Scenario:
After receiving your checkout flights in your new aircraft, you decide to take your former instructor flying. He purchased a used aircraft a year ago and is eager to see the manufacturer improvements as well as the performance of your new multi-engine plane. You collectively decide to fly to an outlying airport where he could also drop off some aircraft parts. The weather is marginal and after a quick check of your destination weather, it looks like the conditions will be deteriorating towards the time your ETA. Your instructor only needs a few minutes on the ground to drop off the parts.

Lesson Objectives:
In this scenario the PT will be given time to practice their partial-panel flight skills and procedures. The PT will also be introduced to unusual flight attitudes. Both nose high and nose low situations should be demonstrated and the PT given the opportunity to recognize and react to each. The PT will have the opportunity to practice two more approaches and will also get to execute another missed approach including another one engine inoperative instrument approach. The PT's instrument proficiency should be showing signs of improvement, as well as their SRM skills. Continue stressing the importance of developing a systematic approach to the mental processes associated with IFR flying.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. The PT will also be introduced to unusual flight attitudes. Both nose high and nose low situations should be demonstrated and the PT given the opportunity to recognize and react to each. The PT will have the opportunity to practice two more approaches including a one engine inoperative instrument approach, and will also get to execute another missed approach.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. The PT's instrument proficiency should be showing signs of improvement, as well as their SRM skills. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 04 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Explain								
	Flight Planning	Explain								
	SRM	Explain								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Explain								
	Aircraft Flight Instruments and Navigation Equipment	Explain								
	Instrument Cockpit Check	Explain								
	SRM	Explain								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Explain								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Explain								
	SRM	Explain								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Explain								
	Recovery from Unusual Flight Attitudes	Describe								
	SRM	Explain								
Navigation Systems	Intercepting and Tracking Navigational Systems	Explain								
	SRM	Explain								
Automation Management	Avionics Programming and Operation	Explain								
	GPS Programming and Operation	Explain								
	Autopilot Programming and Operation	Explain								
	SRM	Explain								
Instrument Approach Procedures	Non-precision Approach	Describe								
	Missed Approaches	Describe								
	Landing from a Straight-In	Explain								
	SRM	Explain								
Emergency Operations	Systems and Equipment Malfunctions	Describe								
	Partial Panel	Explain								
	One Engine Inoperative During Straight-and-Level Flight and Turns	Explain								
	One Engine Inoperative Instrument Approach	Explain								
	SRM	Explain								
Post-flight Procedures	Checking Instruments and Equipment	Explain								
	SRM	Explain								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

At this stage in training the PT should be able to gather and analyze all relevant information to the flight and use good aeronautical decision making to determine whether the flight can be completed as planned. It would be a good idea at this point to review that process and verify the PT is confident and proficient in the performance of those tasks. Periodically point out to the PT the cognitive aspects of the flight. Show how the application of the 5 Ps and good SRM provides them with a practical and reliable method to manage every flight. At this point the emphasis has to be on the PT's ability to manage and direct the processes of the flight as opposed to physically flying them. When demonstrating unusual flight attitudes, be sure to discuss situations or events that can increase the likelihood of entering an unusual flight attitude. Point out to PT the primary difference between the two different types of unusual attitudes; in one situation you are trying to maintain control of the aircraft, in the other you are trying not to over control it. Always emphasize good coordination and smooth application of the appropriate control inputs. While practicing one engine inoperative during straight-and-level flight and turns, be sure to review the spin awareness procedures and ensure the PT understands one engine inoperative flight characteristics of the aircraft. Before beginning each non-precision approach, have the PT brief you on the elements involved for both the instrument approach, the missed approach, and if necessary a one engine inoperative instrument approach procedure. Discuss the process involved in determining when a missed approach is required and the pilot actions required in the event it is. Have the PT also consider how having to go missed changes the circumstances of the flight and directly impacts our aeronautical decision making considerations. During the one engine inoperative instrument approach, have the PT discuss the specific differences between procedures involved in a normal instrument approach and a one engine inoperative instrument approach, including different applicable speeds. You should be able to let the PT assume more and more responsibility for the decision making aspect of the flight.

Flight Training - Stage I

Lesson 05 (ME FLT)

Scenario:
Now that you have a multi-engine aircraft, you feel more comfortable flying longer distances and to higher altitudes. You and two buddies have a planned ski trip for this weekend. You collectively agree to fly to a ski resort within an hour's flight time from your destination airport. You know that this airport becomes very busy on the weekends because it is the closest to the ski-resort. It had snowed earlier in the day but has since stopped. All airports in the vicinity of your destination are reporting IFR conditions. Your arrival airport only has two intersecting runways and does not offer a precision approach procedure. The winds are blowing perpendicular to the only instrument approach available at the field.

Lesson Objectives:
Holding will be introduced to the PT in this lesson. The PT should be able to describe the elements related to holding and be given the opportunity to practice entering and becoming established in the pattern. The effects of wind should be discussed as well as the importance of maintaining orientation in the pattern. In addition to holding, circling approaches will be introduced to the PT. The PT should be able to describe the differences between flying the straight-in approach and flying the circling approach. The lesson also includes the experience of executing a missed approach during a circling maneuver. It is important that the PT realize that they may be forced to abandon an approach and go missed at any point prior to landing. Along with the tasks introduced, the PT will also have another opportunity to practice recovering from unusual flight attitudes and practice another one engine inoperative instrument approach procedure.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. Holding will be introduced to the PT in this lesson and the PT should be able to describe the elements related to holding and be given the opportunity to practice entering and becoming established in the pattern. The effects of wind should be understood as well as the importance of maintaining orientation in the pattern. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 05 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Explain								
	Flight Planning	Explain								
	SRM	Practice								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Explain								
	Aircraft Flight Instruments and Navigation Equipment	Explain								
	Instrument Cockpit Check	Explain								
	SRM	Explain								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Explain								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Explain								
	Holding Procedures	Describe								
	SRM	Explain								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Practice								
	Recovery from Unusual Flight Attitudes	Explain								
	SRM	Explain								
Navigation Systems	Intercepting and Tracking Navigational Systems	Practice								
	SRM	Explain								
Automation Management	Avionics Programming and Operation	Explain								
	GPS Programming and Operation	Explain								
	Autopilot Programming and Operation	Explain								
	SRM	Explain								
Instrument Approach Procedures	Non-precision Approach	Explain								
	Landing from a Straight-In or Circling Approach	Explain								
	Circling Approach	Describe								
	Missed Approach	Explain								
	SRM	Explain								
Emergency Operations	One Engine Inoperative Instrument Approach	Explain								
Post-flight Procedures	Checking Instruments and Equipment	Practice								
	SRM	Practice								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either

agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

This training session should find the PT becoming more self-reliant and confident in the decision making processes of the flight. As the instructor, it is up to you to provide the positive motivation and feedback that will help develop the PT's SRM skills. Learning to trust their own judgment, independent of your input, is essential to training a safe and competent instrument pilot. Upon arrival at the destination airport, use the fact that there is a lot of aircraft arriving and that we will have to hold for the approach. During the introduction to holding procedures, make sure the PT can describe the procedures required to enter and become established and discuss why those procedures are used. At random points in the holding pattern, ask the PT to identify their location in reference to the fix. Have the PT describe how the wind can affect both the timing of the legs and the headings flown outbound and inbound. If the PT has difficulty flying and navigating the holding pattern, take the aircraft controls and allow the PT to concentrate strictly on the mental portion of the task. Once the PT is able to mentally perform the maneuver return the controls to the PT and let them attempt it again. Always make certain the PT can mentally fly the maneuver before expecting them to be able to physically perform it. When demonstrating unusual flight attitudes, be sure to discuss situations or events that can increase the likelihood of entering an unusual flight attitude. Point out to PT the primary difference between the two different types of unusual attitudes; in one situation you are trying to maintain control of the aircraft, in the other you are trying not to over control it. Always emphasize good coordination and smooth application of the appropriate control inputs. Prior to shooting the first approach, have the PT brief the approach and have them describe what the circling maneuver should consist of and what the procedure will be if and when a missed approach becomes necessary. Introduce and emphasize the importance of unusual attitude recovery when practicing circling to land approaches. Practice additional one engine inoperative instrument approach procedures in a circle to land configuration. Be sure to discuss with the PT the VMC airspeed and the proper recovery technique that should be used should directional control be lost at time during the approach. Emphasize that this is most critical during this phase when the aircraft is lower to the ground and we are flying slower (closer to the VMC airspeed). Continually reinforce the PT's use of SRM throughout the flight. At appropriate moments, have the PT assess the situation for you and inform you of their next two intentions. Have them explain what purpose each frequency set in the navigational and communications equipment serves. These are some of the ways you can get them to think ahead of the plane, not just for the next task, but for the task to follow.

Flight Training - Stage I

Lesson 06 (ME FLT)

Scenario:
Your class reunion is being held over the weekend at a hotel in a neighboring town. You decide that you would rather fly to the event since the hotel is located on the airport and some of your high school buddies have never seen your new multi-engine airplane. You decide that you will leave Saturday afternoon before an approaching cold front is due to arrive late Saturday night. Because you're new plane has always been in a hanger at night, your plan is to fly to the reunion, attend the event, and return home before the weather turns. The current weather is MVFR and your destination is reporting an overcast layer and light snow flurries.

Lesson Objectives:
During this lesson the PT will get to do another circling approach, practice another one engine inoperative instrument approach procedure, and review holding procedures. Instead of entering holding from an enroute phase of flight, the PT will be asked to incorporate it in a missed approach procedure. The PT should still be able to determine the correct type of entry and become established in a reasonable period of time. This lesson also provides the PT the opportunity to apply the partial-panel skills they have developed in the previous lessons to an instrument approach. Emphasis should be placed on the PT's SRM practices and a thorough discussion of the thought processes and decision making considerations that should result because of the partial-panel situation. The PT should be able to evaluate the new circumstances surrounding the flight and determine the optimal way to respond using any and all resources at their disposal. More important than the actual conduct of the approach, will be the management and set-up for it. The PT should be able to recognize the increased difficulty level of the task and take steps to compensate for it.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 06 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Explain								
	Flight Planning	Explain								
	SRM	Explain								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Practice								
	Aircraft Flight Instruments and Navigation Equipment	Practice								
	Instrument Cockpit Check	Practice								
	SRM	Practice								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Explain								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Explain								
	Holding Procedures	Describe								
	SRM	Explain								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Practice								
	SRM	Practice								
	Traffic/Terrain Awareness System Programming and Operation	Practice								
Navigation Systems	Intercepting and Tracking Navigational Systems	Practice								
	SRM	Practice								
Automation Management	Avionics Programming and Operation	Explain								
	GPS Programming and Operation	Explain								
	Autopilot Programming and Operation	Explain								
	SRM	Explain								
Instrument Approach Procedures	Non-precision Approach	Explain								
	Circling Procedures	Explain								
	Landing from a Straight-In or Circling Approach	Explain								
	Missed Approach	Explain								
	SRM	Explain								
Emergency Operations	Systems and Equipment Malfunctions	Explain								
	Approach with Loss of Primary Flight Instrument Indicators	Describe								
	One Engine Inoperative Instrument Approach	Practice								
	SRM	Explain								
Post-flight Procedures	Checking Instruments and Equipment	Practice								
	SRM	Practice								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

The emphasis up until now has been on developing the PT's fundamentals, both cognitive and physical. This means that not only should the PT demonstrate the ability to perform each task but they should also be able to manage and apply sound SRM practices prior to, during, and after each task. The desired outcome of all the training conducted so far is to prepare the PT for the more fluid and dynamic environment encountered in IFR cross-country operations. Approach this training lesson with that in mind. Based on their performance, have they reached a level of learning adequate for the next phase of training? Question the PT in a way that will allow you to determine their decision making capabilities and the level of their SRM development. Is the PT planning sufficiently ahead of the airplane and applying good SRM throughout the flight? Has the PT demonstrated the desired performance level for each task covered? The PT should be at the EXPLAIN level for most tasks. Stress to the PT that you will be evaluating them in these areas and make sure they approach the training with that in mind. The PT must be aware of the learning progression you are striving for and understand what they have to do to achieve it.

Flight Training - Stage II

Lesson 07 (ME FLT)

Scenario:
A friend of yours is a contractor and needs to pick up some architectural prints in a city 60 miles from your location. They need these prints today or they will loose a large client and the traffic going into the city would prohibit travel by car before close of business. You were planning to fly in that direction anyhow to gain some additional IFR experience, so you offer to fly your friend to the closest airport nearest the engineering firm. The weather is IFR with similar conditions at the destination airport.

Lesson Objectives:
This lesson represents the PT's first exposure to IFR cross-country procedures. The overall objective of the flight will be to teach the PT how to safely and effectively manage the procedures and tasks required for the departure, enroute, and arrival phases of IFR flight in the National Airspace System. The PT will also be introduced to localizer approaches in preparation for ILS approaches next lesson. More important than the PT's execution of each task will be the aeronautical decision making and risk management behavior they demonstrate throughout the flight. Good SRM should be stressed to the PT and they should apply the 5 P check at the appropriate moments in the flight. The flight is meant to be a simple out and back mission. The intent of which is to allow the PT plenty of time in between each task of the flight so they can experience the flow of a basic IFR cross-country. This will give them sufficient time to analyze the progress of the flight and use good SRM to successfully accomplish the mission. This flight should help the PT develop a better understanding of the types of situations they will encounter during IFR cross-countries and the decisions that will need to be made.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. The PT will be introduced to localizer approaches during this lesson. The PT should be able to describe the components of the approach with some guidance from the instructor.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 07 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Explain								
	Cross-Country Flight Planning	Describe								
	SRM	Explain								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Practice								
	Aircraft Flight Instruments and Navigation Equipment	Practice								
	Instrument Cockpit Check	Practice								
	SRM	Practice								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Practice								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Explain								
	SRM	Explain								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Practice								
	SRM	Practice								
Navigation Systems	Intercepting and Tracking Navigational Systems	Practice								
	FMS	Describe								
	SRM	Practice								
Automation Management	Avionics Programming and Operation	Practice								
	GPS Programming and Operation	Practice								
	Autopilot Programming and Operation	Practice								
	Traffic/Terrain Awareness System Programming and Operation	Practice								
	SRM	Practice								
Instrument Approach Procedures	Localizer Approach	Explain								
	Landing from a Straight-In or Circling Approach	Explain								
	SRM	Explain								
Post-flight Procedures	Checking Instruments and Equipment	Practice								
	SRM	Practice								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

During this lesson you will concentrate on developing the PT's mental picture of IFR cross-countries. Spend extra time with the PT during the pre-briefing to cover the cross-country flight planning. Have them describe what they believe should happen during each phase of the flight. Continually question the PT as to the status of the flight and what the next sequence of events should be. By asking questions and getting them to think ahead you can shape their ADM process and help them develop the SRM skills so important in today's IFR environment. Take time enroute to discuss any advanced navigational and avionics features of the airplane. If an FMS or autopilot is installed, be sure to demonstrate its use and explain the limitations of each piece of equipment. Discuss how this automation can be managed in a way to relieve the PT's workload and help operate the airplane more efficiently. Do not allow the PT to get behind the airplane. Point out appropriate times to begin preparing for the next phase of the flight. The PT has not had to transition from enroute to arrival before. This is a critical period of the flight and if managed correctly can make all the difference in being prepared for the approach or not. Help the PT as necessary to assure a smooth transition from the cruise phase to the approach and landing segment. Review the differences between a localizer approach and a VOR approach. Emphasize the additional sensitivity of the localizer and the importance of small, calculated corrections for the wind. After the landing ask the PT how they feel the first leg went and what they learned from it. Ask them what they would have done differently and how the flight could have been improved. With the lessons learned from the first leg, the PT should have a better idea of what to expect on the second leg. Concentrate on the same points on the return trip and help the PT better manage the flight home. Condition the PT to perform the 5 Ps at the appropriate times to encourage a conscious effort of managing the flight and maintaining the big picture perspective.

Flight Training - Stage II

Lesson 08 (ME FLT)

Scenario:
You and a friend decide that you would like to go to dinner at an airport known for their great food. The restaurant doesn't open till 6:00PM and the airport is approx. 60 miles away by air. The weather all day has been MVFR, but is forecasted to become IFR this evening. You do not have a time restriction on the return, but you friend must be back no later than 8:00PM for a previous engagement. The only available approach at the destination airport is a precision approach.

Lesson Objectives:
This second IFR cross-country flight will provide the PT another opportunity to experience the tasks and procedures associated with navigating in the IFR enroute environment. The lesson will also introduce the PT to ILS approaches. The vertical navigation portion of the ILS should be discussed so the PT understands how the equipment functions, the system limitations, and the operational considerations when navigating a precision approach. This flight should help to build the PT's proficiency at applying good SRM skills to navigate from point to point in the IFR system. It will also challenge the PT to integrate those things they have already learned into the framework of IFR enroute procedures.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. This lesson will introduce the PT to ILS approaches. The PT should be able to describe the components of the ILS system and understand how the procedure should be setup.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 08 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Practice								
	Cross-Country Flight Planning	Describe								
	SRM	Explain								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Practice								
	Aircraft Flight Instruments and Navigation Equipment	Practice								
	Instrument Cockpit Check	Practice								
	SRM	Practice								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Explain								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Explain								
	Holding Procedures	Explain								
	SRM	Explain								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Practice								
	SRM	Practice								
Navigation Systems	Intercepting and Tracking Navigational Systems and DME Arcs	Practice								
	SRM	Practice								
Automation Management	Avionics Programming and Operation	Practice								
	GPS Programming and Operation	Practice								
	Autopilot Programming and Operation	Practice								
	Traffic/Terrain Awareness System Programming and Operation	Practice								
	SRM	Practice								
Instrument Approach Procedures	Non-precision Approach	Practice								
	Precision (ILS) Approach	Describe								
	Missed Approach	Explain								
	Landing from a Straight-In or Circling Approach	Practice								
	SRM	Explain								
Post-flight Procedures	Checking Instruments and Equipment	Practice								
	SRM	Practice								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

Use this scenario to reinforce the PT's application of good aeronautical decision making and risk management. As in the last lesson, emphasize the importance of planning ahead, utilizing all available resources, and managing the flight in a way that allows it to be conducted in the safest, most efficient manner possible. During the enroute phase, discuss any advanced automation features that may be installed in the airplane. Demonstrate to the PT how to incorporate these additional resources with the rest of the resources at the pilot's disposal and how they can be used to alleviate pilot workload and enhance aeronautical decision making. When introducing the ILS approach, have the PT talk you through the approach before they perform it. Ask them what type of wind correction angle and rate of descent do they expect will be necessary for the approach. As they fly the approach, have them describe their actions and explain why they are doing what they are doing. Just as before, it is more important the PT understands why they are doing something than it is for them to actually be able to perform it. Continue to stress the importance of performing the 5 Ps at the appropriate time and maintaining situational awareness during all stages of the flight.

Flight Training - Stage II

Lesson 09 (ME FLT)

Scenario:
You plan on attending a nearby FAA Safety Seminar. You had plans to pickup a friend at a nearby airport and then continue onto to the seminar. Your former instructor at a distant flight school also wishes to attend the same seminar. Since all of the planes at his school have been rented for the day, he asks you if he could tag along in your new multi-engine and whether you could pick him up at his home field. Although you didn't plan on this second stop before the seminar, you don't mind because it is on the way. There is a non-precision approach available at the first airport and a precision approach available at your destination. The weather is IFR with low ceilings at your arrival airport. Since this is a major event, there is a chance that many aircraft will be flying in to attend, and you feel more confident having a CFI aboard in case of any holding instructions.

Lesson Objectives:
This lesson will further develop the PT's IFR cross-country skills. The tempo of the flight will be more demanding with the addition of a third leg, and the PT will have the opportunity to practice holding, non-precision approaches, precision approaches, circling and missed approach procedures, as well as one engine inoperative instrument approaches. It is the intent of this lesson to continue to develop and refine the PT's understanding and implementation of SRM. The additional approach at a third airport will provide the PT with more exposure to the procedures associated with transitioning from the enroute phase of flight to the arrival phase. The pilot workload will also increase, forcing the PT to prioritize and manage the flight better to avoid becoming task saturated. The PT's automation management should be discussed and evaluated to point out any omissions or inefficiencies. After this lesson the PT should demonstrate increased proficiency in all phases of flight and be able to take on more and more of the decision making processes.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 09 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Practice								
	Cross-Country Flight Planning	Explain								
	SRM	Explain								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Practice								
	Aircraft Flight Instruments and Navigation Equipment	Practice								
	Instrument Cockpit Check	Practice								
	SRM	Practice								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Practice								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Practice								
	Holding Procedures	Explain								
	SRM	Explain								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Practice								
	SRM	Practice								
Navigation Systems	Intercepting and Tracking Navigational Systems and DME Arcs	Practice								
	SRM	Practice								
Automation Management	Avionics Programming and Operation	Practice								
	GPS Programming and Operation	Practice								
	Autopilot Programming and Operation	Practice								
	Traffic/Terrain Awareness System Programming and Operation	Practice								
	SRM	Practice								
Instrument Approach Procedures	Non-precision Approach	Explain								
	Precision Approach	Describe								
	Missed Approach	Explain								
	Circling Approach	Explain								
	Landing from a Straight-In or Circling Approach	Explain								
	SRM	Explain								
Emergency Operations	One Engine Inoperative Instrument Approach	Practice								
Post-flight Procedures	Checking Instruments and Equipment	Practice								
	SRM	Practice								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

Prior to the flight, review the PT's preflight planning and discuss the anticipated flow of the flight. Briefly cover the departure and arrival procedures associated with each airport the flight is planned to and ask the PT to identify critical transition points along the route and the procedures to be performed when reaching those points. By asking these questions up front you can get the PT focused on the SRM aspects of the flight and have them mentally map out the flight before they become involved in its actual conduct. This will help them stay ahead of the flight and recognize when they are getting behind or when they have failed to accomplish a task that should have been completed by a certain point in the flight. It also gives you a better idea of their preparedness and lets you know if they are applying the lessons learned from previous flights. Ask them how they plan on using any advanced automation systems to alleviate pilot workload and how and when that would be best accomplished. During the flight, remind the PT of the points discussed in the preflight briefing. Always question the PT in future tense. This will force them to think ahead of the plane and project what they anticipate happening. The PT must think in a cause and affect manner. Stress to them that every decision made during the flight eliminates some possibilities and creates new ones. A constant reassessing must take place during the flight so the PT can manage the risk and demonstrate sound aeronautical decision making. The PT should also be demonstrating an increased proficiency in their radio communications procedures and should be able to request and receive ATC instructions and clearances without much assistance from you. At this point in their training, they have performed each task expected of them in this flight and you should not have to give much direction in the way of what to say or ask for from ATC. Encourage the PT's non-reliance on you in this area. A good indicator of the PT's confidence is how well they handle the communications between themselves and ATC.

Flight Training - Stage II

Lesson 10 (ME FLT)

Scenario:
For some reason, the radios in your new multi-engine have been causing some minor problems. You contact the manufacture and they recommend you fly the aircraft to their contracted avionics repair station in the adjacent State. You decide to follow their advice and fly the aircraft to the maintenance station because you also noticed that the ammeter was showing an insufficient charge while flying the other day. Before departing you test to make sure all the avionics are working prior to takeoff. At this time, everything is working fine and you elect to proceed. The weather conditions however have not cooperated with you and the flight will be in IFR conditions; you select an alternate with a precision approach should it become required.

Lesson Objectives:
This scenario presents more aeronautical decision making challenges than previous flights. The malfunction of the alternator, although not a critical event in VMC, can lead to a serious emergency in IMC. One of the objectives of this flight is to increase the PT's ability to recognize and react to system malfunctions and use good SRM to manage the situation as safely as possible. The PT should be able to recognize the risk associated with the inevitable loss of the alternator. They should come to the decision that continuing on to an airport that the plane may not be able to get into could lead to an even riskier situation. All aspects of SRM (TM, AM, SA, ADM, RM, CFIT Awareness) must be correctly used by the PT to successfully conclude this flight. More than anything else, this flight is an SRM training mission.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. One of the objectives of this flight is to increase the PT's ability to recognize and react to system malfunctions and use good SRM to manage the situation as safely as possible. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 10 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Practice								
	Cross-Country Flight Planning	Practice								
	SRM	Practice								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Practice								
	Aircraft Flight Instruments and Navigation Equipment	Practice								
	Instrument Cockpit Check	Practice								
	SRM	Practice								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Practice								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Practice								
	Holding Procedures	Practice								
	SRM	Practice								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Practice								
	SRM	Practice								
Navigation Systems	Intercepting and Tracking Navigational Systems	Practice								
	SRM	Practice								
Automation Management	Avionics Programming and Operation	Practice								
	GPS Programming and Operation	Practice								
	Autopilot Programming and Operation	Practice								
	Traffic/Terrain Awareness System Programming and Operation	Practice								
	SRM	Practice								
Instrument Approach Procedures	Non-precision Approach	Practice								
	Precision Approach	Explain								
	Landing from a Straight-In or Circling Approach	Practice								
	SRM	Explain								
Emergency Operations	Systems and Equipment Malfunctions	Practice								
	Alternator Failure	Describe								
	Approach with Loss of Primary Flight Instrument Indicators	Explain								
	SRM	Explain								
Post-flight Procedures	Checking Instruments and Equipment	Practice								
	SRM	Practice								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

In this lesson the onus on you as the flight instructor is to help the PT react in the correct manner to the events of the flight. Since this is the first time that the PT will be faced with an electrical failure, guide their actions and more importantly, help them think through the various potential outcomes. Based upon your environment and location, you should determine what systems will malfunction and let the PT handle the response. Help to mold the way the PT uses their knowledge and skills in conjunction with all the other resources available to decide on a plan of action that will result in the safest resolution of the situation. Make sure the PT is able to answer why they are doing something, not just how they plan on doing it. Address each aspect of SRM, particularly Risk Management, and ask them how each malfunction affects the safety of the flight. You want the PT to walk away from this activity better able to apply the 5 Ps, recognize abnormal situations, initiate troubleshooting procedures, and make sound decisions based on the proper use of SRM.

Flight Training - Stage II

Lesson 11 (ME FLT)

Scenario:

You plan on flying your daughter and her friend to a famous resort town for some rest and relaxation. You have arranged to pick your daughters friend up at an airport approximately 25 miles from your home base. The weather looked like is would be fair this morning, but the fog that you thought would not be a factor in planning has been slow to burn off. You elect to conduct the flight IFR and decide to takeoff. There is only a non-precision approach at the airport where your daughter's friend is located. Your alternate airport does have an ILS should the fog be too thick to land. There are some thunderstorms within the vicinity of the resort town.

Lesson Objectives:

The primary objective of this lesson is to continue developing the PT's SRM skills by presenting them with abnormal and emergency situations that they will need to have knowledge and skills. These should include loss of communication and loss of primary flight instrument indicators. Hypothetical emergencies such as fuel starvation or critical engine failure, icing, and electrical equipment failures could also be discussed and/or demonstrated. It is intended that each situation confronting the PT will require them to consider all aspects of SRM to successfully resolve. The emphasis is again on the PT's ability to manage the flight, not just fly it. At this stage the PT should be showing much more independence in the decision making process, especially for normal IFR operations. Some help may be required from the instructor while the PT reacts to the abnormal and emergency situations, but aside from those moments, little guidance should come from the instructor. The PT should also be demonstrating the ability to integrate the capabilities of any advanced automation to reduce pilot workload and gather more information to use in their decision making processes.

Pre-Briefing:

The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. At this stage the PT should be showing much more independence in the decision making process, especially for normal IFR operations.

Completion Standards:

The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. The PT should also be demonstrating the ability to integrate the capabilities of any advanced automation to reduce pilot workload and gather more information to use in their decision making processes. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 11 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Practice								
	Cross-Country Flight Planning	Explain								
	SRM	Explain								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Explain								
	Aircraft Flight Instruments and Navigation Equipment	Explain								
	Instrument Cockpit Check	Explain								
	SRM	Explain								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Explain								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Explain								
	Holding Procedures	Practice								
	SRM	Explain								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Practice								
	SRM	Practice								
Navigation Systems	Intercepting and Tracking Navigational Systems and DME Arcs	Practice								
	SRM	Practice								
Automation Management	Avionics Programming and Operation	Practice								
	GPS Programming and Operation	Practice								
	Autopilot Programming and Operation	Practice								
	Traffic/Terrain Awareness System Programming and Operation	Practice								
	SRM	Practice								
Instrument Approach Procedures	Non-precision Approach	Practice								
	Precision Approach	Explain								
	Missed Approach	Practice								
	Landing from a Straight-In or Circling Approach	Practice								
	SRM	Explain								
Emergency Operations	Systems and Equipment Malfunctions	Practice								
	Electrical Equipment Malfunctions	Explain								
	Loss of Primary Flight Instrument Indicators	Practice								
	Icing Procedures	Explain								
	Thunderstorm Avoidance	Explain								
	Fuel Starvation	Explain								
	One Engine Inoperative Instrument Approach	Practice								
	SRM	Practice								
Post-flight Procedures	Checking Instruments and Equipment	Practice								
	SRM	Practice								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

This flight should once again be used to develop the PT's SRM skills. Abnormal and emergency scenarios require far more situational awareness, risk management, and decision making considerations than normal operations. It's during these times that a pilot's SRM skills will become so important. During the thunderstorm scenario, discuss the airplane's limitations and its aerodynamic characteristics. Ask the PT to explain the importance of maintaining airplane attitude versus altitude. Discuss relative wind and how it changes during updrafts and downdrafts. Have the PT consider all the risks associated with flying into a thunderstorm and ask them what they can do to minimize each one. Make certain the PT understands why each recommended course of action helps to increase the safety of the flight and why other courses of action can actually increase the dangers involved. When asking the PT to react to a hypothetical inadvertent icing encounter, test their knowledge of the aircraft systems that can be affected and have them verbally go over how each instrument operates and what actions should be taken if the airplane is accumulating ice. Make sure the PT applies the recommended procedures such as turning on any anti-icing or deicing systems, activates any stand-bye systems, reports the situation to ATC and applies good SRM to safely and efficiently remove the airplane from the icing environment. Have them also consider other aspects of flying in icing conditions, such as disturbed airflow over the wings and control surfaces, increased weight of the airplane, and potential propeller imbalances. It's important that the PT considers all of the affects icing has on the airplane and not just how it affects the instruments. Only by doing this can they use good SRM to minimize the total risk to the flight that the icing presents. One other important result of this flight should be the PT's ability to demonstrate autonomy in the decision making aspects of the cross-country. If during the approach in the fog scenario, the visibility prohibits a landing, make certain that the PT realizes the different options available including holding and (or) flying to the alternate with a precision approach. Other than the three hypothetical emergencies presented during the flight, the PT will have already performed all of the tasks that make up this mission and should be self reliant when it comes to talking to ATC, performing the 5 Ps, briefing each approach, managing the automation, and performing each task. You can help the PT when necessary, but emphasize the fact that you will be expecting them to make most of the decisions during the flight.

Flight Training - Stage II

Lesson 12 (ME FLT)

Scenario:
Your employer wants you to pick up some business equipment from two separate towns and return it to the company by the end of the day. You decide that instead of spending the entire day driving, and possibly missing your dinner engagements with your spouse, you would rather pilot your own plane to accomplish the task. You decide that this may be a good opportunity to test the newly replaced avionics system and battery that was recently installed. You arrange with the other factories representatives involved to meet you at the local airports so that you may retrieve the equipment and return home. The weather has been IFR all day with periods of light rain.

Lesson Objectives:
The emphasis in this flight is the PT's use of automation during cross-country operations and the simulation of lost communications procedures. The PT should show a thorough knowledge of the automation features equipped in the airplane and be able to use them in a manner that helps to reduce pilot workload and increase the safety and efficiency of the flight. The PT should be able to navigate using both victor airways and via off airways routes. Additionally, the PT should demonstrate increased proficiency performing DME Arcs and approach procedures. If we were to lose radio communications, the PT should be able to describe to the instructor the steps to take to troubleshoot the problem and what actions will be required of them according to the company procedures, manufacturer recommendations, and federal aviation regulations. The PT should demonstrate an adequate level of knowledge of lost communications procedures and be able to apply good SRM to alleviate workload, gather pertinent flight information, and decide on the appropriate course of action for each hypothetical situation presented to them by the instructor.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. The emphasis in this flight is the PT's use of automation during cross-country operations and the simulation of lost communications procedures.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. The PT should show a thorough knowledge of the automation features equipped in the airplane and be able to use them in a manner that helps to reduce pilot workload and increase the safety and efficiency of the flight. The PT should be able to navigate using both victor airways and via off airways routes. Additionally, the PT should

demonstrate increased proficiency performing DME Arcs and approach procedures. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 12 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Practice								
	Cross-Country Flight Planning	Practice								
	SRM	Practice								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Perform								
	Aircraft Flight Instruments and Navigation Equipment	Perform								
	Instrument Cockpit Check	Perform								
	SRM	Manage/Decide								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Perform								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Perform								
	Holding Procedures	Practice								
	SRM	Practice								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Perform								
	SRM	Manage/Decide								
Navigation Systems	Intercepting and Tracking Navigational Systems	Practice								
	SRM	Practice								
	DME Arcs	Practice								
Automation Management	Avionics Programming and Operation	Practice								
	GPS Programming and Operation	Practice								
	Autopilot Programming and Operation	Practice								
	Traffic/Terrain Awareness System Programming and Operation	Practice								
	Navigation on Airways	Practice								
	Navigation off Airways	Practice								
	SRM	Practice								
Instrument Approach Procedures	Non-precision Approach	Practice								
	Precision Approach	Practice								
	Coupled Approach	Explain								
	Manual Approach	Explain								
	Landing from a Straight-In or Circling Approach	Perform								
	SRM	Practice								
Emergency Operations	Loss of Communications	Describe								
	SRM	Describe								
Post-flight Procedures	Checking Instruments and Equipment	Perform								
	SRM	Manage/Decide								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

This flight will introduce the PT to lost communications procedures. Your job as the flight instructor will be to guide the PT's decision making process by questioning them in a manner that requires them to explain exactly what route to fly, what altitude to fly, and when to continue beyond a clearance limit. Also discuss the procedures to follow if the pilot is operating in VFR conditions. Try to get the PT to think of alternative ways to make contact with ATC or other entities. Suggest the possibility of using NAVAIDs, attempting radio contact with other aircraft, or attempting contact with a nearby automated flight service station. Although the possibility of a complete communications failure is remote, you want the PT to realize that it can happen and each flight should be approached with that possibility in mind. You also want the PT to feel comfortable and confident in their ability to respond to such an emergency if it should arise. One important point to make is that although the PT is unable to communicate with ATC all other aircraft systems are functioning correctly and the plane can still be maneuvered in a normal manner. Unlike some other emergencies such as fuel starvation, icing, electrical equipment failures, communications failures simply require the pilot to understand the nature of the national airspace system and know the procedures to follow when unable to communicate with ATC. Rather than approaching radio communications failure as an emergency, you should have the PT look at it as a test of their ability to navigate completely on their own. Your job should be to instill in the PT the confidence to react to such a situation in a calm and decisive manner, knowing they are following the procedures ATC will expect them to follow.

The PT and instructor will depart the original airport IFR and proceed to their first destination. During this leg the PT will be expected to utilize all aircraft systems, avionics, and autopilot functions during climb, cruise, descent, and approach. A DME Arc should be performed at the first airport and the PT will execute a coupled ILS approach followed by a landing from a straight-in or circling approach. For the second leg, the PT will again use all automation available in the airplane and depart via a published Departure Procedure. The second destination airport will be navigated to via off airways routing. A non-precision approach will be performed at the airport followed by a missed approach. After performing the missed approach the PT will proceed on course for the final leg of the flight and the instructor will advise them that there is reason to believe that they have suffered a radio failure of some sort. The PT will be expected to

troubleshoot the situation using the prescribed procedures. The PT will be informed that they are in a lost communications situation and that they should proceed with the rest of the flight accordingly. The instructor should simulate the lost comm. situation as realistically as possible, including unplugging the PT's headset if necessary. The PT will be expected to apply the recommended procedures for such as situation and the instructor will present them with a variety of hypothetical situations to test the PT's knowledge of the regulations and required actions to use in each particular circumstance. The instructor will handle all communications for the remainder of the flight. Prior to flying the approach into the final destination airport, the instructor will advise the PT that they are ahead of their ETA and ask the PT what course of action should be taken. A holding pattern will be requested at an IAF, if possible, and the PT will advise the instructor as to how long they will be required to hold there and what actions they will take to transition to the approach and landing. Even after landing the PT will be expected to continue the flight as though the radios were still inoperable and advise the instructor exactly what actions would be necessary to taxi to the ramp.

Flight Training - Stage II

Lesson 13 (ME FLT)

Scenario:
The day of the big game has arrived. You and two friends are headed to the Super Bowl. You planned your flight last night and although there is a front passing, it's not anticipated to bring a lot of weather with it. Because you've got a bit of baggage and your two friends aren't exactly small people, you've decided to carry just enough fuel to meet the VFR day minimums. Because of this will be required to make a fuel stop between your departure and arrival point. The weather at both your departure point and destination is MVFR.

Lesson Objectives:
The objective of this lesson is to meet the requirement of FAR 61.65(d)(iii). The cross-country planned must be at least 250 nautical miles in distance along airways or ATC-directed routing and should include an instrument approach at three different airports using three different navigation systems. The PT will also be expected to show proficiency in planning and executing the cross-country, using all resources at their disposal.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. The instructor should review special use airspace, federal airways, IFR enroute charts, terminal procedures publications, and instrument approach procedures charts for the PT's chosen route of flight.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. The completed cross-country must be at least 250 nautical miles in distance along airways or ATC-directed routing and should include an instrument approach at three different airports using three different navigation systems. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 13 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Perform								
	Cross-Country Flight Planning	Practice								
	SRM	Practice								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Perform								
	Aircraft Flight Instruments and Navigation Equipment	Perform								
	Instrument Cockpit Check	Perform								
	SRM	Mange/Decide								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Practice								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Practice								
	Holding Procedures	Practice								
	SRM	Practice								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Perform								
	SRM	Manage/Decide								
Navigation Systems	Intercepting and Tracking Navigational Systems and DME Arcs	Perform								
	SRM	Manage/Decide								
Automation Management	Avionics Programming and Operation	Practice								
	GPS Programming and Operation	Practice								
	Autopilot Programming and Operation	Practice								
	Traffic/Terrain Awareness System Programming and Operation	Practice								
	SRM	Practice								
Instrument Approach Procedures	Non-precision Approach	Practice								
	Precision Approach	Practice								
	Missed Approach	Practice								
	Landing from a Straight-In or Circling Approach	Perform								
	SRM	Practice								
Emergency Operations	Approach with Loss of Primary Flight Instrument Indicators	Practice								
	SRM	Practice								
Post-flight Procedures	Checking Instruments and Equipment	Perform								
	SRM	Manage/Decide								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

Although we are trying to satisfy the requirements of FAR 61.65 (d)(iii) the PT will not be asked to do anything they haven't done at least a couple of times already. As the instructor you should be able to monitor the PT's performance and assess their level of proficiency in each task associated with this flight. Prior to the flight, ask the PT to explain how they planned the cross-country. Ask specific questions regarding special use airspace, federal airways, IFR enroute charts, terminal procedures publications, and instrument approach procedures charts. During the flight confirm that they are able to maintain good situational awareness. The PT should be able to make decisions well ahead of time and evaluate several different options available to them. Make sure they are not overlooking important facts or data and they do not operate the airplane in a reactive manner. Part of staying ahead of the plane and being forward thinking is using the automation installed in the aircraft. Observe the PT's interaction with the avionics and navigation equipment and ask them to explain why they are using the systems in the manner that they are. Emphasize that good SRM practices can head off potential problems and will always keep the pilot one step ahead of the plane. Throughout the PT's instrument flight training, continue to encourage the PT to exercise more and more independence in their actions so they have the self confidence necessary to perform competently in the IFR system.

Flight Training - Stage II

Lesson 14 (ME FLT)

Scenario:
You plan on flying your parents to a family reunion approximately 100 miles from your destination. Your mother has always been a nervous flyer and also has some flu-like symptoms. Since you had planned on flying them for the last few weeks, they decided not to drive. Their attendance is critical as the reunion is in their honor and now it will be too late to still make it by automobile. The weather has been IFR all day with thunderstorms approaching your destination airport. These storms are forecasted to not be a factor upon your arrival. Your plan would be to attend the reunion and get your parents back home before nightfall.

Lesson Objectives:
This lesson requires the PT to execute an unplanned diversion while enroute. It is the intent of this scenario to evaluate the PT's ability to utilize all resources at their disposal while they apply sound SRM practices in the cockpit to formulate an alternate plan of action to accomplish the new mission. The PT should be able to prioritize the tasks necessary to accomplish this and smoothly coordinate their actions in the safest and most efficient way possible. In addition, the PT should be able to perform all tasks associated with departure, enroute, and arrival procedures and require little to no assistance from the instructor. The successful outcome of each instrument approach should never be in doubt and any deviations should be recognized and corrected by the PT. By the conclusion of this training mission, the PT should be demonstrating instrument proficiency in all the tasks and need very little help from the instructor to complete the flight.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. The instructor should make certain that the PT always selects an alternate and that the PT can successfully execute a diversion to that alternate if necessary.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. The PT should be able to prioritize the tasks necessary to accomplish this and smoothly coordinate their actions in the safest and most efficient way possible. In addition, the PT should be able to perform all tasks associated with departure, enroute, and arrival procedures and require little to no assistance from the instructor. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 14 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Perform								
	Cross-Country Flight Planning	Perform								
	SRM	Manage/Decide								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Perform								
	Aircraft Flight Instruments and Navigation Equipment	Perform								
	Instrument Cockpit Check	Perform								
	SRM	Manage/Decide								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Perform								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Perform								
	Holding Procedures	Perform								
	Diversion Procedures	Practice								
	SRM	Manage/Decide								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Perform								
	SRM	Manage/Decide								
Navigation Systems	Intercepting and Tracking Navigational Systems and DME Arcs	Perform								
	SRM	Manage/Decide								
Automation Management	Avionics Programming and Operation	Perform								
	GPS Programming and Operation	Perform								
	Autopilot Programming and Operation	Perform								
	Traffic/Terrain Awareness System Programming and Operation	Perform								
	SRM	Manage/Decide								
Instrument Approach Procedures	Non-precision Approach	Perform								
	Precision Approach	Perform								
	Circling Approach	Perform								
	Landing from a Straight-In or Circling Approach	Perform								
	SRM	Practice								
Emergency Operations	One Engine Inoperative Instrument Approach	Perform								
Post-flight Procedures	Checking Instruments and Equipment	Perform								
	SRM	Manage/Decide								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

The goal of this flight is to execute a diversion to a planned alternate. The reason for this diversion should be based upon the thunderstorms that are approaching the planned destination airport or some other unseen event due to the local environment. At this stage, the PT should be making all the decisions with the instructor acting as a passenger. There are the three primary skills that you should be looking for regarding the student's progress at this stage in their training; their ability to interface effectively with the aircraft systems, their knowledge of and proficiency in performing departure, enroute, and arrival procedures, and their ability to apply safe and effective SRM concepts in the conduct of the flight. Good SRM provides the structure and organization to allow the pilot to successfully manage each flight, regardless of the events that should occur during the flight. Continually reiterate this point to the PT. If the PT finds their workload increasing beyond what they would normally experience, have them consider if this is a result of extra work or whether it was a failure on their part to use good SRM. To help develop task management skills, ask questions such as: Could something have been done earlier to alleviate the number of tasks required to be performed now? Could proactive planning helped? Make sure that you point out where they could have managed their resources better to have accomplished a task in an easier, more controlled manner. You can decide how to handle the diversion, whether it should be the result of a sick passenger, or the result of bad weather at the destination.

Flight Training - Stage II

Lesson 15 (ME FLT)

Scenario:
You plan a trip to an airport approximately 100 miles south of your home airport where you plan on picking up a few friends and returning them back home for the weekend. There is a front approaching your destination airport that will bring rain showers and moderate icing conditions. Your plan is to arrive at the airport and pickup your friends before the weather arrives. One of your friends does notify you that he may be a little late due to traffic. The destination airport has a published radar approach and you would like the practice so you request either a PAR or an ASR approach upon your arrival.

Lesson Objectives:
In this lesson the PT will review many of the basic IFR tasks such as precision and non-precision approaches, holding, missed approach, cross-country operations, and one engine inoperative instrument approaches. In addition to these tasks, the PT will be introduced to radar approaches. The objective is to expose them to this type of instrument approach so they have a better understanding of the services and options available through ATC. By being aware of this type of approach the PT could, in the case of a flight instrument or navigational failure, opt for a radar approach rather than attempt an approach while partial-panel or when using unreliable or suspect navigation equipment. The reason for doing the approach is purely for the benefit of the PT so that they know what to expect in the case they should ever have the need to request such an approach. The primary focus should be on the maneuvers and procedures being reviewed. The PT should be demonstrating consistent proficiency performing each task and should need no assistance from the instructor. They should also be applying effective SRM throughout the flight.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. The instructor should brief the PT on the proper procedures for a PAR or ASR approach.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 15 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Perform								
	Cross-Country Flight Planning	Perform								
	SRM	Manage/Decide								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Perform								
	Aircraft Flight Instruments and Navigation Equipment	Perform								
	Instrument Cockpit Check	Perform								
	SRM	Manage/Decide								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Perform								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Perform								
	Holding Procedures	Perform								
	SRM	Manage/Decide								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Perform								
	SRM	Manage/Decide								
Navigation Systems	Intercepting and Tracking Navigational Systems and DME Arcs	Perform								
	SRM	Manage/Decide								
Automation Management	Avionics Programming and Operation	Perform								
	GPS Programming and Operation	Perform								
	Autopilot Programming and Operation	Perform								
	Traffic/Terrain Awareness System Programming and Operation	Perform								
	SRM	Manage/Decide								
Instrument Approach Procedures	Non-precision Approach	Perform								
	Precision Approach	Perform								
	Missed Approach	Perform								
	PAR Approach	Explain								
	ASR Approach	Explain								
	Landing from a Straight-In or Circling Approach	Perform								
	SRM	Manage/Decide								
Emergency Operations	One Engine Inoperative Instrument Approach	Perform								
Post-flight Procedures	Checking Instruments and Equipment	Perform								
	SRM	Manage/Decide								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. The reason for doing the approach is purely for the benefit of the PT so that they know what to expect in the case they should ever have the need to request such an approach. The primary focus should be on the maneuvers and procedures being reviewed. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

During this lesson you should be concentrating on the PT's understanding of IFR procedures, their ability to apply those procedures, and their ability to manage the flight in an orderly and efficient manner. Make it clear to the PT prior to the flight that you should not be relied upon to assist them in any fashion other than during the radar approach procedure. Every other aspect of the flight will be a review of previously covered tasks and procedures. The PT should be at a point where they are able to conduct an IFR cross-country without any assistance from you. Also, advise them that they will be expected to perform all tasks within the limits outlined in the instrument PTS. Occasional deviations may occur, but it will be the PT's responsibility to recognize and correct them. You will not be providing any input during the course of the flight unless it is absolutely necessary for you to do so. Additionally, make sure the PT understands that they should be at a Manage/Decide level of SRM and all decisions regarding the flight should be made by them without your prompting or assistance.

Flight Training - Stage II

Lesson 16 (ME FLT)

Scenario:
You have decided that because of rising insurance and the fuel consumption rates of your multi-engine aircraft, that you will sell your aircraft. A friend of yours is interested in purchasing the plane but wants to check out the handling characteristics including the avionics package. You collectively decide to take the airplane on an extended cross country so that he can get a feel for the plane and learn some of the programming for instrument approaches. You will describe to him how to program the avionics and use the autopilot. Your friend only has the day available for this flight and unfortunately the weather has been IFR and isn't forecasted to improve.

Lesson Objectives:
This lesson is designed to test the PT's ability to perform all IFR tasks required in the instrument PTS. Every Scenario Activity and each task listed under it should be covered and the PT should demonstrate satisfactory proficiency in those areas before continuing to the final review flight.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
The PT will have successfully completed this lesson after demonstrating the desired performance for each task listed and exhibiting the required level of SRM to safely and efficiently complete the training scenario. Additionally, the PT should be able to identify any errors or unsafe practices made during the flight, including SRM considerations, and understand why those actions were not optimal and what corrective action should have been taken.

Lesson 16 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Perform								
	Cross-Country Flight Planning	Perform								
	SRM	Manage/Decide								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Perform								
	Aircraft Flight Instruments and Navigation Equipment	Perform								
	Instrument Cockpit Check	Perform								
	SRM	Manage/Decide								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Perform								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Perform								
	Holding Procedures	Perform								
	SRM	Manage/Decide								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Perform								
	Recovery from Unusual Flight Attitudes	Perform								
	SRM	Manage/Decide								
Navigation Systems	Intercepting and Tracking Navigational Systems and DME Arcs	Perform								
	SRM	Manage/Decide								
Automation Management	Avionics Programming and Operation	Perform								
	GPS Programming and Operation	Perform								
	Autopilot Programming and Operation	Perform								
	Traffic/Terrain Awareness System Programming and Operation	Perform								
	SRM	Manage/Decide								
Instrument Approach Procedures	Non-precision Approach	Perform								
	Precision Approach	Perform								
	Missed Approach	Perform								
	Circling Approach	Perform								
	Landing from a Straight-In or Circling Approach	Perform								
	SRM	Manage/Decide								
Emergency Operations	Loss of Communications	Perform								
	Approach with Loss of Primary Flight Instrument Indicators	Perform								
	One Engine Inoperative During Straight-and-Level Flight and Turns	Perform								
	One Engine Inoperative Instrument Approach	Perform								
	SRM	Manage/Decide								
Post-flight Procedures	Checking Instruments and Equipment	Perform								
	SRM	Manage/Decide								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

During this review flight you should not be required to assist the PT in any way. It is important for the PT to not only demonstrate proficiency in all the tasks, but to show SRM independence. In other words, the PT must prove that they not only can perform each task within the standards established by the FAA but they can also manage all aspects of IFR flying without any assistance from their instructor. It is this concept of cockpit self-reliance that must be stressed to the PT. Let them know that it is just as important for them to show you that they can conduct the flight free from any help from you as it is to demonstrate they can perform each task to the expected level of performance. Their ability to safely plan, manage, and execute the mission has been the objective of all the training they've received and that is what you will be looking to see them demonstrate.

Flight Training - Stage II

Lesson 17 (ME FLT)

Scenario:
This is a review flight before the end of course check ride. All scenarios for this flight should be tailored to the student's individual needs and work should be done on areas needing special assistance or review. This should be a cross country flight with three legs.

Lesson Objectives:
The objective of this lesson is to determine that the student is thoroughly prepared for the End of Course Checkride and that they meet Instrument Rating Practical Test Standards for each maneuver performed.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
The student must demonstrate that they meet the acceptable standards of knowledge and skill of each task within the Instrument Rating Practical Test Standards.

Lesson 17 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Perform								
	Cross-Country Flight Planning	Perform								
	SRM	Manage/Decide								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Perform								
	Aircraft Flight Instruments and Navigation Equipment	Perform								
	Instrument Cockpit Check	Perform								
	SRM	Manage/Decide								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Perform								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Perform								
	Holding Procedures	Perform								
	SRM	Manage/Decide								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Perform								
	Recovery from Unusual Flight Attitudes	Perform								
	SRM	Manage/Decide								
Navigation Systems	Intercepting and Tracking Navigational Systems and DME Arcs	Perform								
	SRM	Manage/Decide								
Automation Management	Avionics Programming and Operation	Perform								
	GPS Programming and Operation	Perform								
	Autopilot Programming and Operation	Perform								
	Traffic/Terrain Awareness System Programming and Operation	Perform								
	SRM	Manage/Decide								
Instrument Approach Procedures	Non-precision Approach	Perform								
	Precision Approach	Perform								
	Missed Approach	Perform								
	Circling Approach	Perform								
	Landing from a Straight-In or Circling Approach	Perform								
	SRM	Manage/Decide								
Emergency Operations	Loss of Communications	Perform								
	Approach with Loss of Primary Flight Instrument Indicators	Perform								
	One Engine Inoperative During Straight-and-Level Flight and Turns	Perform								
	One Engine Inoperative Instrument Approach	Perform								
	SRM	Manage/Decide								
Post-flight Procedures	Checking Instruments and Equipment	Perform								
	SRM	Manage/Decide								

De-Briefing:

Solicit a self-critique from the student about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the student's self evaluation to your own and discuss why you either agreed or disagreed with the student's assessment. Use this information to direct your analysis of their flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how they should prepare for it.

Notes to the Instructor:

During this review flight you should not be required to assist the PT in any way. It is important for the PT to not only demonstrate proficiency in all the tasks, but to show SRM independence. In other words, the PT must prove that they not only can perform each task within the standards established by the FAA but they can also manage all aspects of IFR flying without any assistance from their instructor. It is this concept of cockpit self-reliance that must be stressed to the PT. Let them know that it is just as important for them to show you that they can conduct the flight free from any help from you as it is to demonstrate they can perform each task to the expected level of performance. Their ability to safely plan, manage, and execute the mission has been the objective of all the training they've received and that is what you will be looking to see them demonstrate.

Flight Training - Stage II

Lesson 18 (ME FLT)(Practical Test)

Scenario:
This flight will be conducted in accordance with the scenario established in the Instrument Rating Practical Test Standards.

Lesson Objectives:
The check pilot will discuss how the flight examination will be conducted and answer any questions the student may have regarding the flight. The student should have a clear understanding of what standards will be expected of them.

Pre-Briefing:
The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
Completion standards for each task are outlined in the current FAA Instrument Rating Practical Test Standards.

Lesson 18 **Desired Outcome Grade Sheet**			Task Grades					SRM Grades		
			Not Obs	Describe	Explain	Practice	Perform	Explain	Practice	Manage
Scenario Activity	Task	Desired Performance								
Preflight Preparation	Weather Information	Perform								
	Cross-Country Flight Planning	Perform								
	SRM	Manage/Decide								
Preflight Procedures	Aircraft Systems Related to IFR Operations	Perform								
	Aircraft Flight Instruments and Navigation Equipment	Perform								
	Instrument Cockpit Check	Perform								
	SRM	Manage/Decide								
Air Traffic Control Clearances and Procedures	Air Traffic Control Clearances	Perform								
	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Perform								
	Holding Procedures	Perform								
	SRM	Manage/Decide								
Flight by Reference to Instruments	Basic Instrument Flight Maneuvers	Perform								
	Recovery from Unusual Flight Attitudes	Perform								
	SRM	Manage/Decide								
Navigation Systems	Intercepting and Tracking Navigational Systems and DME Arcs	Perform								
	SRM	Manage/Decide								
Automation Management	Avionics Programming and Operation	Perform								
	GPS Programming and Operation	Perform								
	Autopilot Programming and Operation	Perform								
	Traffic/Terrain Awareness System Programming and Operation	Perform								
	SRM	Manage/Decide								
Instrument Approach Procedures	Non-precision Approach	Perform								
	Precision Approach	Perform								
	Missed Approach	Perform								
	Circling Approach	Perform								
	Landing from a Straight-In or Circling Approach	Perform								
	SRM	Manage/Decide								
Emergency Operations	Loss of Communications	Perform								
	Approach with Loss of Primary Flight Instrument Indicators	Perform								
	One Engine Inoperative During Straight-and-Level Flight and Turns	Perform								
	One Engine Inoperative Instrument Approach	Perform								
	SRM	Manage/Decide								
Post-flight Procedures	Checking Instruments and Equipment	Perform								
	SRM	Manage/Decide								

De-Briefing:

The check pilot (examiner) will inform the student of the results of the examination and discuss any unsatisfactory items so that the student is clear on the reason they failed those items. The student should have an opportunity to ask any clarifying questions they may have prior to the end of the debriefing.